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Forest Service

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Northwest  
Region

1990



# Land and Resource Management Plan

## Wenatchee National Forest



## **PREFACE**

**T**his National Forest Land and Resource Management Plan is developed to direct the management of the Wenatchee National Forest. The goal of the Forest Plan is to provide a management program reflective of a mixture of management activities that allow use and protection of the Forest resources; fulfill legislative requirements; and address local, regional and national issues and concerns.

The Forest Plan will be reviewed (and updated if necessary) at least every 5 years. It will ordinarily be revised on a 10-year cycle, or at least every 15 years.

This Land and Resource Management Plan has been prepared according to Secretary of Agriculture regulations (36 CFR 219) which are based on the Forest and Rangeland Renewable Resource Planning Act (RPA) as amended by the National Forest Management Act of 1976 (NFMA).

The Plan has also been developed in accordance with regulations (40 CFR 1500) for implementing the National Environmental Policy Act of 1969 (NEPA). The Forest Plan represents the implementation of the preferred alternative as identified in the Final Environmental Impact Statement (FEIS) for the Wenatchee National Forest.

Additional direction used in developing this Forest Plan came from the Final Environmental Impact Statement for the Pacific Northwest Regional Guide, 1984, as amended December 8, 1988.

If any particular provision of this Forest Plan or its application to any person or circumstances, is held invalid, the remainder of the Forest Plan and its application of that provision to other persons or circumstances shall not be affected.

Further information pertaining to this plan can be provided by:

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# CHAPTER I

## FOREST PLAN INTRODUCTION

### A. PURPOSE OF THE FOREST PLAN

The Forest Plan guides all natural resource management activities and establishes management standards and guidelines for the Wenatchee National Forest. It describes resource management practices, levels of resource production and management, and the availability and suitability of lands for resource management.

The decisions of the Regional Forester in approving a Forest Plan may generally be categorized as:

1. Establishment of forest-wide multiple-use goals and objectives [36 CFR 219.11(b).];
2. Establishment of forest-wide standards and guidelines to fulfill requirements of NFMA applying to future activities [resource integration requirements of 36 CFR 219.13 to 219.26, and the requirements of 36 CFR 219.27];
3. Establishment of management area direction including management area prescriptions and standards and guidelines applying to future management activities in that management area [36 CFR 219.11(c).];

4. Establishment of allowable timber sale quantity and designation of suitable timber land [36 CFR 219.16 and 219.14]; and

5. Establishment of monitoring and evaluation requirements [36 CFR 219.11(d)].

The Forest Plan embodies the provisions of the National Forest Management Act of 1976, its implementing regulations, and other guiding documents. Land use determinations, prescriptions, and standards and guidelines are a statement of the Plan's management direction; however, the project outputs, services, and rates of implementation are dependent on the annual budgeting process.

*This Forest Plan establishes the management direction for the Wenatchee National Forest and it will ordinarily be revised on a 10 year cycle, or at least every 15 years.*

## **B. RELATIONSHIP OF THE FOREST PLAN TO OTHER DOCUMENTS**

This Forest Plan sets forth the direction for managing the land and resources of the Wenatchee National Forest. The Plan results from extensive analysis and considerations that are addressed in the accompanying Environmental Impact Statement (EIS) and Record of Decision. The planning process and the analysis procedures that were used to develop this Plan are described or referenced in the EIS. The EIS also describes other alternatives considered in the planning process.

Specific activities and projects will be planned and implemented to carry out the direction in this Plan. The Forest will perform environmental analysis on these projects and activities. Project level environmental analysis will use the data and evaluations in the Plan and EIS as its basis. Environmental analysis of projects will be tiered to the Environmental Impact Statement (EIS) accompanying this Forest Plan.

### **REGIONAL GUIDE**

The Regional Guide for the Pacific Northwest Region (June 1984) as amended December 8, 1988 provides direction for National Forest Plans. It includes standards and guidelines addressing major issues and management concerns considered at the Regional Level, to facilitate Forest planning.

### **ALPINE LAKES MANAGEMENT PLAN**

The Alpine Lakes Area Management Act of 1976 (PL 94-357) required that a separate plan be developed for the Alpine Lakes Area. This plan and Environmental Impact Statement was developed with extensive public involvement, and implemented early in 1982. The regulations guiding the development of Forest Plans state that "if, in a particular case, special area authorities require the preparation of a separate special plan, the direction in any such plan may be incorporated without modification in plans prepared under (these regulations)," (36 CFR 219.2(b)).

The area has been managed under the above plan for approximately eight years. To date, neither the Forest Service nor the public have identified any major problems with the allocation or management of that plan. Some minor adjustments have been made in Management Requirements for water, wildlife and fish to meet NFMA standards. Preliminary administrative recommendations will be made for some rivers for consideration under the Wild and Scenic Rivers Act. In good faith to those members of the public who helped develop that plan, the Forest Plan incorporates the land allocations and management as presented in the Alpine Lakes Area Land Management Plan. Both the Wenatchee and the Mt. Baker-Snoqualmie Forests are in agreement with this direction which will allow that plan to stand the test of time. Problems which surface could be handled administratively or when the Forest Plan is revised in approximately ten years.

If direction in this Plan is found not to agree with the direction contained in the Alpine Lakes Management Plan, the Alpine Lakes Plan will take precedence for the Alpine Lakes Management Unit with the exception of some management requirements for water, wildlife and fish and protecting of eligible Wild and Scenic rivers. Copies of the Alpine Lakes Plan are available for review at the Wenatchee National Forest Supervisor's Office, 301 Yakima Street, Wenatchee, Washington.

### **PROJECT PLANNING**

The Forest Plan serves as the single land and resource management plan for the Wenatchee National Forest. All other land management plans are replaced by the direction in this Forest Plan; see Chapter V for a listing of existing plans that this Forest Plan supersedes.

The management direction provided by this Forest Plan comprises the framework within which project planning and activities take place.

## **C. PLAN STRUCTURE**

The Forest Plan is organized into five chapters and seven supplemental sections. They are:

**Chapter I - Forest Plan Introduction** describes the purpose of the Plan, summarizes its content, illustrates the geographic location, and discusses the Plan's relationship to other documents.

**Chapter II - Provides a Summary of the Analysis of the Current Management Situation (AMS)**. Included are summaries of the current management situation for each resource, potential supply for various resource goods and services, a brief look at demand, and a brief socioeconomic overview of the Forest and related communities and counties.

**Chapter III - Contains the Responses to Issues, Concerns, and Opportunities**. This chapter shows how the management plan addresses and responds to the major public issues, and management concerns identified during the planning process.

**Chapter IV - Forest Management Direction**. This chapter is the heart of the Plan and presents the management goals, objectives, and standards and guidelines that constitute direction for resource management covered by the plan.

**Chapter V - Implementation Of The Forest Plan** - This chapter explains how management direction will be implemented, how implementation activities will be monitored and evaluated, and how the plan can be kept current in light of changing conditions or other findings.

**Glossary** - This section contains Forest Plan terms that need a common understanding or which have special meanings.

**Appendix A** - Included are detailed schedules of projected activities by resource.

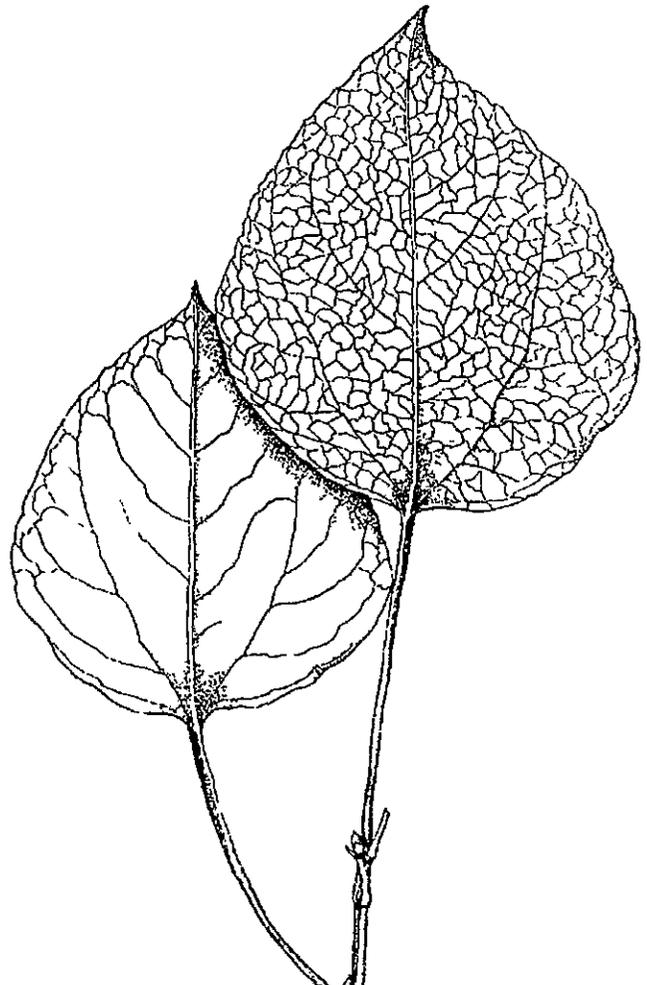
**Appendix B** - Includes the land classification ownership direction by management prescription

**Appendix C** - Includes a copy of the Treaty With The Yakima, 1855.

**Appendix D** - Is a Fire Management Policy Model decision matrix.

**Appendix E** - Is The Wilderness Management Appendix.

**Appendix F** - Includes a set of Monitoring Worksheets used to develop the details of the monitoring plan which is summarized in Table V-I of Chapter V.



## D. FOREST DESCRIPTION

The Wenatchee National Forest is a publicly owned natural area of marvelous beauty, diversity, and productivity. The Forest includes a net area of 2,164,180 acres. It is about 140 miles long and 25 to 55 miles wide, stretching from spectacular Lake Chelan in the north through the rugged Goat Rocks Wilderness in the south. It begins at the very crest of the Cascade Range in Central Washington State and falls sharply to the breaks of the Columbia River. Elevations on the Forest range from 800 feet to more than 9,500 feet, encompassing three major landforms and more than 30 different geologic formations.

This geologic variety and a wide difference in precipitation across the Forest leads in turn to an unusual diversity in vegetation and an associated richness of wildlife species. The vegetation changes with elevation and moisture as the Forest rises from grass, sage, and bitterbrush in the low-lying eastern areas, through open stands of orange-barked ponderosa pine, and into mixed forests of pine, Douglas fir, and larch. Next it rises into subalpine areas with true firs and lodgepole pine, and finally reaches lush alpine meadows fringed with hardy stands of alpine firs, larch, and whitebark pine.

Areas near the Cascade crest receive up to 140 inches of precipitation and as much as 25 feet of snow accumulation each year. Moisture declines markedly to the east, resulting in near-desert conditions with less than 10 inches of precipitation on the eastern fringes of the forest. However, the generous precipitation and snowpack in the high mountain areas supply hundreds of sparkling alpine lakes and dozens of tumbling streams and rivers. These in turn feed half a dozen large lakes and reservoirs that help water thousands of acres of productive farmland in the fertile valleys of central Washington.

The diversity of the Forest also has led to a great variety of wildlife species. An estimated 394 species of fish and wildlife reside within the forest. These vary from stately elk to the tiny mouse-like pika, from soaring bald eagles to hummingbirds, from leaping salmon to shadowy suckers methodically vacuuming the bottom of lakes and streams.

This wealth of water, wildlife, and scenery plus dependably sunny weather attract millions of recreation-minded visitors to the Wenatchee Forest. Indeed, with nearly 5 million visitor days of use recorded each year, the Forest is one of the half dozen most heavily visited National Forests in the nation. People come to camp, hike, fish, hunt, to take in the scenery, to take pictures, ride horses, drive 4-wheel-drive vehicles and ride motorbikes, to rockhound and pan for gold, to cut firewood, to gather mushrooms, and pick berries. In winter they come to ski (downhill and cross-country), to snowshoe, ride snowmobiles, and play in the snow. This recreation activity is a key ingredient in the tourism industry that has become a cornerstone of the central Washington economy.

The Wenatchee Forest is also an important producer of sawtimber and other wood products. Trees sold at auction and cut by local companies are mostly processed in Washington State into lumber, plywood, paper, furniture, and firewood. The wood products industry has long been an important employer in many communities within and adjacent to the Forest.

The Forest is also subject to periodic natural disasters like wildfire, floods, windstorms, and insect outbreaks. These occurrences require occasional costly mobilization of people and equipment to minimize damage to forest resources and to rehabilitate impacts which have occurred.

The great diversity of Forest resources and uses translates to complexity in management and Forest planning. The variety of uses also leads to the potential for considerable differences in opinion on which uses should be emphasized in management. These are some of the challenges addressed by this management plan.



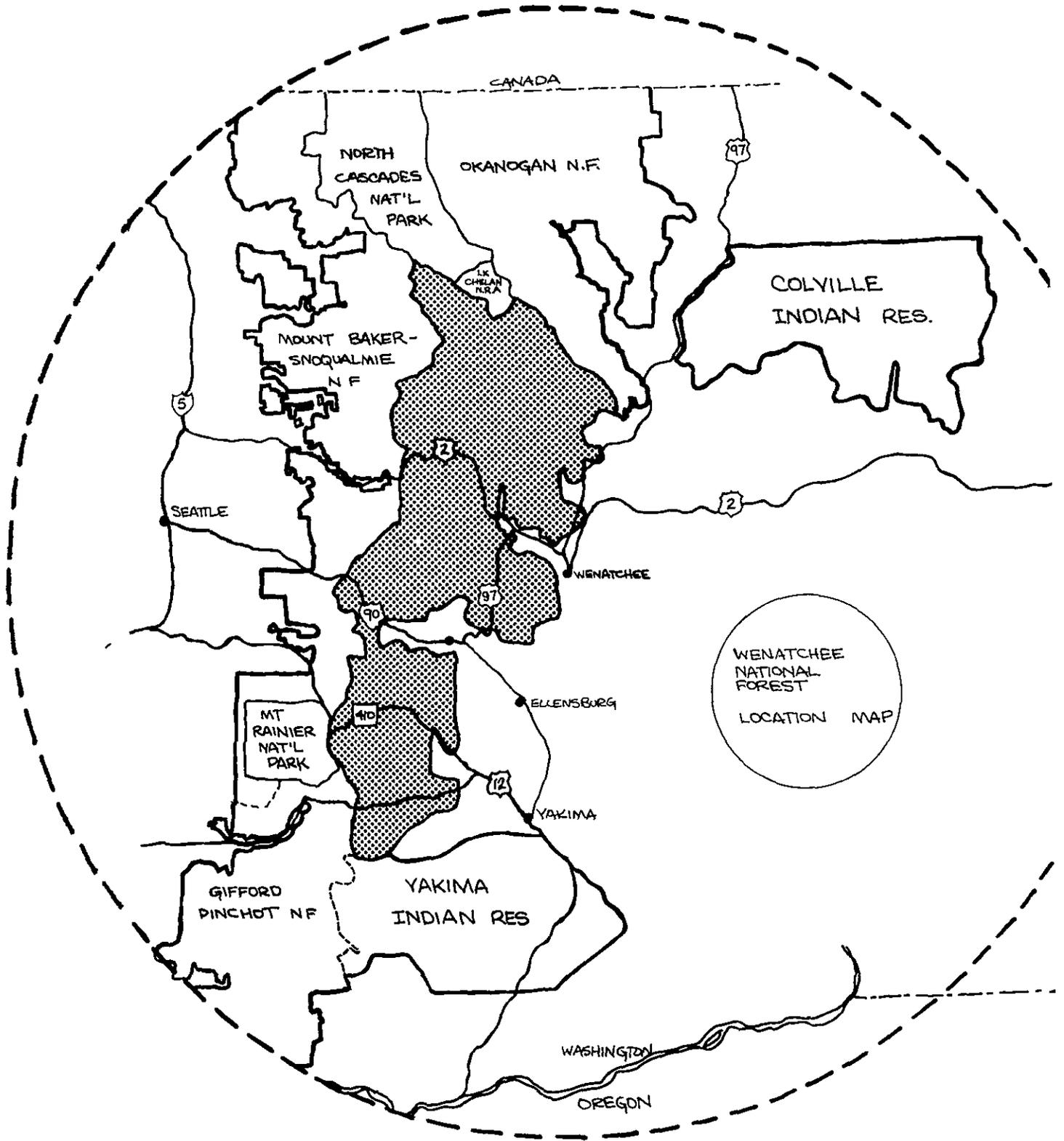
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# WENATCHEE NATIONAL FOREST LOCATION MAP

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## CHAPTER II

# SUMMARY OF THE ANALYSIS OF THE CURRENT MANAGEMENT SITUATION

### A. INTRODUCTION

This chapter describes the present condition and current management of the Wenatchee National Forest. It estimates the potential for producing each forest resource, given legal and other requirements. It also describes the supply of market and non-market forest resources and, where possible, the future demand for these resources.

Supply estimates for the current program are based on current management direction for the Forest. The sources of that direction were the Alpine Lakes Management Plan, the Chelan and Kittitas Unit Plans, and Ranger District multiple-use plans. Outputs are based on land allocations contained in these plans, and on up-to-date yield calculations being used in the FEIS.

The production potential for each resource is the amount of goods or services (yields) which could be produced while meeting legal and other minimum requirements. The potential for all resources can not be met at the same time. With few exceptions, when the potential for one resource is maximized, production of another resource will be reduced or eliminated entirely. For example, if maximum timber production is reached, then unroaded recreation and visual quality would be significantly reduced.

Issues, concerns, and opportunities identified by the public and Forest managers during the planning process have helped identify needs for changing current management direction. This change is reflected in the preferred management direction in Chapter IV.

## B. ENVIRONMENTAL COMPONENTS

The supply and demand conditions of primary resource elements are detailed under each resource section. Table II-31 which follows the resource narratives, summarizes conditions for these resources.

### 1. RECREATION SETTING

#### Overview

A tremendous diversity of elevation, vegetation, and precipitation on the Wenatchee National Forest results in an equal variety of recreation uses and opportunities. The Forest has been the sixth most heavily visited National Forest in the United States for the past several years, and the diversity of uses is unsurpassed.

Recreation is heaviest in the summer months, but occurs in all seasons of the year. In the early spring, hikers, horse users, and trailbike enthusiasts flock to low elevation trails. These activities follow the melting snows upward during the summer until fall storms begin to push users back down into the valleys. Scenic highways and forest roads are equally attractive to visitors, and driving for pleasure is one of the most popular public recreation uses of the Forest. There are 126 campgrounds and picnic areas offering visitors a rustic camping experience for a few hours or for several days.

Because of its size, diversity, and accessibility, the Wenatchee National Forest has a remarkable capacity to absorb recreation use any time of the year. Although recreation use is projected to increase steadily in the future, the Forest has so much to offer that crowding and shortages are expected to be only localized problems.

#### a. Developed Recreation

##### 1) Current Management Program

The Forest provides a full spectrum of developed recreation opportunities. Table II-1 indicates the kind and number of developed sites now in existence.

**TABLE II-1**  
**KINDS AND NUMBERS OF**  
**RECREATION SITES**

<u>Kind of Site</u>	<u>Number of Each</u>
Observation	3
Boating	7
Trailhead	12
Campground, Family	115
Campground, Organized Group	3
Picnic Ground	8
Hotel, Lodge, or Resort	7
Organization Site	20
Other Recreation Concession	2
Recreation Resident Tract	54
Winter Sports	7
Information	6
<b>TOTAL</b>	<b>244</b>

Most of the use in the developed recreation setting takes place in camp and picnic grounds. These sites were used to near capacity on weekends in 1988.

The resorts, organization sites, and recreation resident tracts which are under special use permits to commercial businesses, organizations, and individuals, provide additional recreation opportunities throughout the Forest.

At the present time, there are 45 campgrounds where a user fee is being charged. This fee ranges from \$3.00 to \$6.00 per day for individual family camp units. There are many multi-family units where the fee is adjusted according to the size of the unit and number of families it will accommodate.

In addition to the family unit campgrounds, the Forest has five group sites that can be reserved in advance at a fee that ranges from \$12.00 to \$50.00.

Seven downhill ski areas offer a variety of skiing opportunities and challenges in alpine, subalpine, and low elevation settings. Stevens Pass, Snoqualmie Pass, and Pac West Ski Areas are administered by the Mt. Baker-Snoqualmie National Forest. White Pass and Mission Ridge are large developments administered by the Wenatchee National Forest that draw skiers from a broad area. Chelan and Leavenworth Ski Areas are modest operations serving local users.

## 2) Production Potential

The ability of the Forest to produce developed recreation supply is directly related to the potential to expand or develop new facilities. This potential is affected by budgets in addition to the physical capacity for sites. The physical capacity for expanding or developing new sites is not limited for the ten to fifteen years covered by this plan and should not limit the supply through or beyond the 50 year planning horizon.

The Forest Service objective for downhill skiing is to provide the opportunity to the private sector, through special use permits, to develop successful ski areas which enhance the total outdoor recreation spectrum for the general public. There are seven sites on the Forest and current interest is on expansion of the Mission Ridge and White Pass Areas. The Stevens Pass Ski Area has recently expanded by developing an area in the Mill Creek drainage east of Stevens Pass. Additional expansion is expected in that area.

The Chiwaukum Mountains in the vicinity of the Dardanelles on Highway 2 is the most promising potential ski area that has been inventoried. If this potential is pursued, it would be subjected to thorough environmental analysis as required by the National Environmental Policy Act. The analysis would include full public involvement.

## 3) Demand

The developed recreation sites listed in Table II-1 have a current total capacity of 4,883,000 Recreation Visitor Days (RVD's). Developed recreation use at all sites in 1986 was 2,731,000 RVD's, or 56% of the available capacity. These figures indicate a surplus of 2,152,000 RVD's. However, this surplus is misleading considering the capacity figures include early and late season periods during the use season, and mid-week periods when visitor use is much lower. During most weekends and holidays during the use season, sites are filled to capacity. When sites are operating at full capacity, users crowd into areas, resulting in problems such as strained sanitation systems and water supplies, and conflicts between users and impacts on vegetative and soil resources. Expansion and improvements at many of the sites is planned for the first decade, increasing the capacity of sites to 6,683,000 RVD's. This figure includes proposed expansion of ski areas and other private sector development on the Forest. This capacity is expected to be adequate through the life of this Plan.

Estimated recreation demand through the fifth decade planning period was obtained from the 1979 Washington State-wide Comprehensive Outdoor Recreation Plan (SCORP). This plan estimates that demand for developed recreation activities would increase about 20%, 12%, 7%, 10% and 7% per-year through the five decade planning period. To reach demand estimates, visitor use figures for 1986 were projected by the estimated increase use percentages through the five decade planning period.

### b. Dispersed Recreation

#### 1) Current Management Program

Dispersed recreation refers to those recreation activities that occur outside of developed sites such as camp or picnic grounds, resorts, organization sites, etc. It includes such activities as camping in undeveloped areas, hiking, off-road vehicle use (ORV), fishing, hunting, horseback riding, mountain climbing, cross-country skiing, gathering firewood, gathering berries, boating, driving for pleasure, etc.

## RECREATION SETTING

There are 2,463 miles of trails on the Forest. Approximately 48 percent of the Forest trails are in wilderness. The Forest Service is currently working with users to develop 4-wheel drive routes, trail bike, cross-country ski, and snowmobile routes. Use of trails by all types of users is steadily increasing. The planning and management of this trail system requires active participation by user groups, a requirement not difficult to achieve in view of the high interest shown. Dispersed recreation outside of wilderness takes place in both a roaded or unroaded setting. Most of the above activities can be enjoyed in either setting, however, some users prefer either one setting or the other for their recreation pursuits. Often recreationists will use both settings during a single visit.

The current management program allocations would retain 261,059 acres outside of wilderness in an unroaded setting. These allocations include:

- a. 64,597 acres in the RE-2 allocation dedicated to unroaded non-motorized recreation.
- b. 59,551 acres in the RE-3 allocation dedicated to unroaded motorized recreation.
- c. 136,911 acres in the SI-1 allocation dedicated to dispersed recreation in a natural unroaded condition.

There were 746,300 RVD's use on these unroaded acres in 1986, or 33% of the total dispersed non-wilderness use.

Roaded dispersed recreation would be available on 1,062,087 acres under current management allocations, however, in 1985 there were 712,900 acres actually in a roaded setting with the remaining 326,842 acres scheduled for development in current land use plans. In 1986 there were 1,514,700 RVD's used on the 712,900 roaded acres or 67 percent of the total dispersed non-wilderness use.

## 2) Production Potential

The potential of the Forest to provide various settings for non-wilderness dispersed recreation is dependent on the acreage in the roaded and unroaded settings at a given time. The existing setting would provide the maximum unroaded potential and was used as the maximum unroaded benchmark. It would provide 1,365,000 unroaded RVD's capacity. All of this capacity could be dedicated to either unroaded motorized or unroaded non-motorized use. This setting would also produce 17,835,000 RVD's of roaded recreation on the 712,900 roaded acres.

The maximum timber benchmark would approximate the maximum roaded recreation setting. At the end of the 15th decade there would be approximately 1,069,800 roaded acres which would provide 26,746,000 RVD's capacity. This setting would produce 744,000 RVD's capacity on approximately 271,400 unroaded acres, or one-half of the current unroaded capacity.

## 3) Demand

Table II-2 indicates the estimated projected demand for Dispersed Recreation in terms of Roaded, Unroaded-motorized, and Unroaded-non-motorized uses.

The supply, however, will vary over time as the inventory shifts from an unroaded condition to a roaded condition. The Forest's current supply for each of these categories exceeds the projected demand through the year 2030.

Projected recreation demand was calculated in the same manner as demand for developed recreation, using the 1979 Washington State-wide Comprehensive Outdoor Recreation Plan estimates.

**TABLE II-2**  
**DISPERSED RECREATION**  
**Projected Demand**  
**In Millions of Recreation Visitor Days**

	DECADE 1	DECADE 2	DECADE 5
<b>Roaded</b> Estimated Projected Demand	1.998	2.126	2.630
<b>Unroaded Motorized</b> Estimated Projected Demand	.279	.301	.405
<b>Unroaded Nonmotorized</b> Estimated Projected Demand	.099	.106	143

The preceding supply and demand figures are based on mathematical formulas and take into account length of stay, season of use, and the concentration of use per-acre for the various ROS settings. Some supply and demand relationships are hard to quantify. Large unroaded areas have a very low visitor use capacity. The assumption is that some users prefer this low density of people and will seek out these opportunities.

There are very few lakes in unroaded areas with motorized trail access. There is an expressed desire by trail bike users for this type of opportunity.

There is a demand for moderate to easy backpacking opportunities for large groups and organizations, in highly scenic, primitive settings. Most of the high quality opportunities are in wilderness, where large party sizes are not permitted.

There appears to be a shortage of similar opportunities for outfitter-guides to take large groups of clients into high quality semi-primitive areas without going into wilderness.

## 2. WILD, SCENIC, AND RECREATIONAL RIVERS

### a. Current Management Program

On October 7, 1968, Congress enacted the Wild and Scenic Rivers Act PL 90-542 which placed eight rivers in the nation under a National Wild and Scenic Rivers System.

As part of the Forest planning process, direction has been given to look at each river on the Nation-wide River Inventory and those not on the inventory, but having public interest expressed in them, to verify that they meet eligibility criteria for inclusion in the National Wild and Scenic Rivers System. This is based upon criteria set forth under sections 1(b) and 2(b) of the Wild and Scenic Rivers Act and as supplemented by USDA-USDI Guidelines.

On the Forest, portions of the Chiwawa, White, and Wenatchee Rivers are included on the current Nationwide River Inventory. Present management of land adjacent to these rivers is guided by Regional direction based on Presidential direction. This states that agencies having rivers listed on the inventory shall take prompt action to protect the rivers and avoid or mitigate adverse effects activities might have on such rivers. Assessment of these rivers is the responsibility of the agency or the State having the largest portion of the river.

As a result of both in-service review and the analysis of comments received from the public during the comment period for the DEIS, the Forest Supervisor formed an interdisciplinary (ID) team to make a reassessment of eligibility for all rivers on the Wenatchee National Forest. The ID Team was also assigned the task of completing a suitability analysis for the resulting eligible rivers.

The ID Team did not conduct an evaluation on the Yakima River, due to the non-Federal ownership of most lands adjacent to the river. The 1.25 miles within the National Forest boundary is not considered eligible because it does not have an outstandingly remarkable feature. National Forest lands make up less than one percent of the ownership of the 102 mile river length. The State of Washington may conduct a study of the Yakima River under the Washington State Scenic Rivers Program.

**b. Production Potential**

Of the 33 rivers analyzed, 10 were found by the ID Team to be eligible, and were classified as "wild, scenic, or recreational." The following table indicates the highest potential classification for which these river segments qualify.

**c. Demand**

There has been public support for and against recommendation of the following rivers to Congress for consideration under the Wild and Scenic Rivers Act. Most of the input received against recommendation has come from local residents who live on or near the rivers, and are concerned with excessive government controls and/or acquisition of their property.



**TABLE II-3  
HIGHEST POTENTIAL RIVER CLASSIFICATION  
UNDER THE WILD & SCENIC RIVERS ACT**

River	Segment <sup>1/</sup>	Classification	Length/Miles		Total
			NF	Other	
AMERICAN	Headwaters to confluence w/Rainier Fork	Wild	6.0	0	6.0
	Confluence w/Rainier Fork to confluence w/ Bumping River	Scenic	16.0	0	16.0
CLE ELUM	Headwaters to Alpine Lakes Wilderness boundary	Wild	4.0	0	4.0
	Alpine Lakes Wilderness boundary to Salmon La Sac Bridge	Scenic	6.0	10.0	16.0
	Salmon La Sac Bridge to head of Lake Cle Elum	Recreational	3.5	1.0	4.5
WAPTUS	Headwaters to confluence with Cle Elum River	Wild	13.0	0	13.0
ICICLE	Headwaters to Alpine Lakes Wilderness boundary	Wild	12.0	0	12.0
	Alpine Lake Wilderness Boundary to 2.5 miles above National Forest boundary	Scenic	7.5	6.5	14.0
	2.5 miles above National Forest boundary to National Forest boundary	Recreational	0.5	2.0	2.5
LITTLE WENATCHEE	Riverside CG Falls to Lake Wenatchee	Scenic	5.5	2.5	8.0
NAPEEQUA	Headwaters to Glacier Peak Wilderness boundary	Wild	15.0	15.0	15.0
	Glacier Peak Wilderness boundary to confluence w/ White River	Recreational	1.0	1.0	1.0
WHITE	Headwaters to Glacier Peak Wilderness boundary	Wild	15.0	0	15.0
	Glacier Peak Wilderness boundary to Lake Wenatchee	Scenic	11.5	7.5	19.0
CHIWAWA	Headwaters to Glacier Peak Wilderness boundary	Wild	5.0	0	5.0
	Glacier Peak Wilderness boundary to Goose Creek	Scenic	22.75	1.25	24.0
	Goose Cr. to confluence w/ Wenatchee River	Recreational	2.75	3.25	6.0
ENTIAT	Headwaters to Cottonwood trailhead	Wild	16.5	0	16.5
	Cottonwood trailhead to private land boundary	Scenic	15.0	0	15.0
WENATCHEE	Lake Wenatchee to National Forest boundary	Recreational	14.75	13.25	28.0

<sup>1/</sup> Some segments have been combined for this table.

### 3. CULTURAL RESOURCES

#### a. Current Management Program

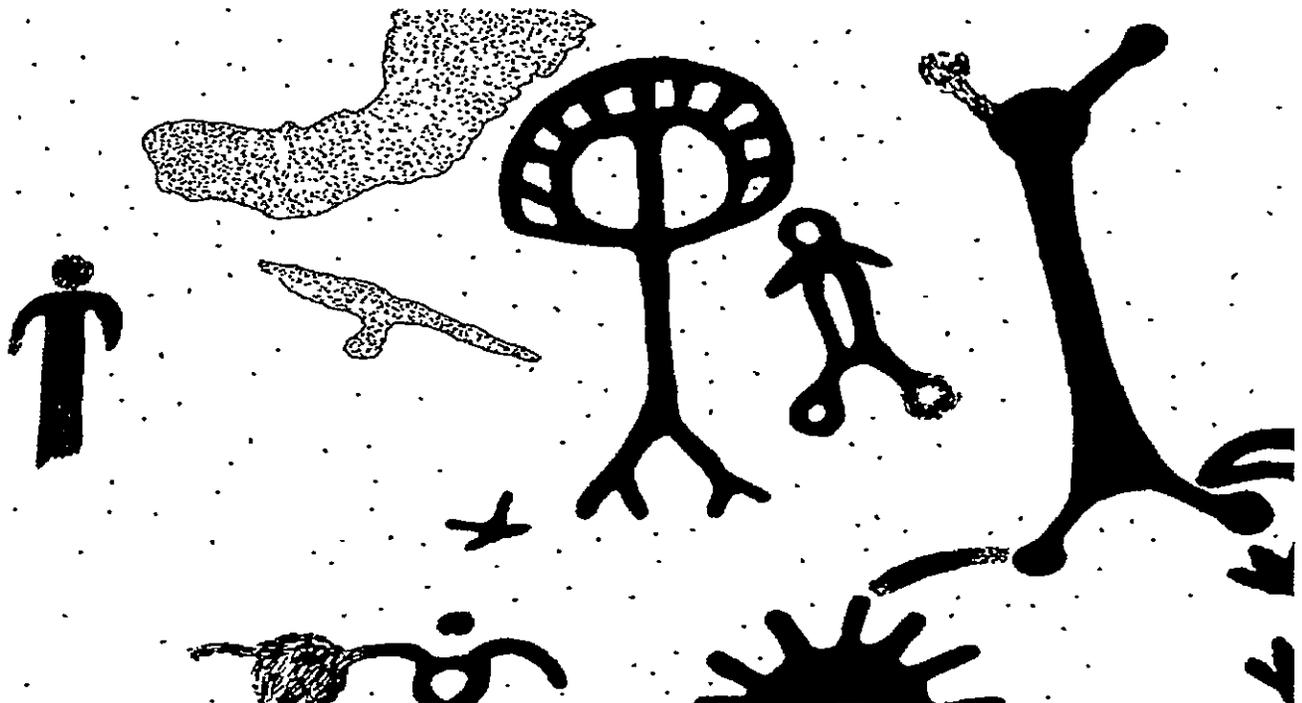
The cultural resource base of the Wenatchee National Forest includes a diverse and unusually rich range of historic and prehistoric artifacts and sites. These include: 1) historic cabins, trails, mines, ditches, railroad grades, emigrant trails, original highway grades, mills, and homesteads; 2) historic Forest Service structures including guard stations, lookout towers, corrals, camps, administrative centers, and Depression-era campgrounds and buildings; and 3) prehistoric campsites, villages, graves, quarries, pictographs, workshops, trails, rock shelters, and religious sites.

In accordance with the National Historic Preservation Act of 1966 as amended, the National Environmental Policy Act of 1969, as well as a series of implementing regulations and policy direction, the Forest has undertaken a program to identify, evaluate, preserve, protect, and interpret the cultural resources. A cultural resource overview, pulling together most of the recorded information relating to the prehistoric and ethnographic uses of the Forest, has been completed, and is available for review at the Forest Supervisor's office. An overview of the historic resources of the Forest still needs to be completed.

Between 1976 and 1985 cultural resources were inventoried on about 123,372 acres of the Forest, or 6 percent of the total Forest acreage. Most field examinations have been done in conjunction with other Forest activities. These surveys have determined the location and nature of cultural sites within potential project areas. At the present rate, project inventory will be completed at a rate of about 30,000 acres per year. Most of this will be in support of the timber sale program.

Inventories have been mostly confined to surface examinations only. Archaeological test excavations have been carried out at five sites on the Forest to determine their subsurface extent and potential eligibility for inclusion in the National Register of Historic Places. These sites were selected for testing because of their relationship to planned timber sales and campground developments. Ultimately the data retrieved may provide important contributions to archaeological research.

Table II-4 is a summary of the known and reported cultural resources of the Forest as of 1985. Historic sites are those associated with the period for which there are written records. In central Washington, the historic era begins at roughly 1805 A.D., with the Lewis and Clark expedition on the lower Columbia River. Prehistoric sites are those predating this period, and are linked to the American Indians and their ancestors.



**TABLE II-4**  
**INVENTORIED AND REPORTED CULTURAL SITES**  
**1985**

Ranger District	Number of Inventoried Sites 1/		Number of Reported Sites and/or Use Areas 2/		Conditions of Remains			Interpretive Value		
	Historic	Prehistoric	Historic	Prehistoric	Poor	Fair	Unknown	Yes	No	Unknown
Chelan	5	2	40	32	20	23	36	23	48	8
Cle Elum	68	11	108	58	97	77	71	52	170	23
Entiat	6	0	38	8	21	17	14	16	26	10
Lake Wenatchee	17	12	83	13	43	47	35	32	83	10
Leavenworth	10	4	78	20	37	42	33	36	63	13
Naches	61	82	25	68	50	76	110	39	182	15
<b>TOTAL</b>	<b>167</b>	<b>111</b>	<b>372</b>	<b>199</b>	<b>268</b>	<b>282</b>	<b>299</b>	<b>198</b>	<b>572</b>	<b>79</b>

1/ Includes Forest Service Site Inventories, University/WARC Inventories, State and National Registers.

2/ These include sites situated on adjacent and intermingled private land.

### **b. Production Potential**

The number of sites known and evaluated may represent only a small portion of the total of cultural resources that actually exist on the Forest. Prehistoric and historic land use patterns suggest a high probability for the occurrence of other significant cultural resources within the Forest.

Approximately 90 percent of the identification and evaluation of cultural resources has been carried out in support of the timber sale program. Hence the number of acres currently managed for cultural resource values, which have been determined on the basis of the number and type of significant cultural resources present, is directly related to the acres of timber prescribed for treatment annually.

Recently, increased recreation funding initiated many projects that may adversely impact cultural resources. As lands are allocated to uses involving land and vegetation modification, the probability of adverse impacts on cultural resources also increases. Studies on the Forest indicate certain locations have the greatest probability for overlap between cultural resources and other management activities (Wenatchee National Forest Sampling Design 1983).

As the dimension of land development increases elsewhere, a correspondingly greater proportion of the physical remnants of our American heritage and a large source of scientific data will be irrevocably lost. As a result, the value of cultural sites on National Forest lands will increase with time, intensifying the need to identify, protect, and manage this irreplaceable resource. At the

## CULTURAL RESOURCES

same time, because of conflicts with other resource management needs, management decisions will require a multitude of considerations, including factors such as the level of significance of the property, its condition, its suitability for research or interpretive opportunities, accessibility, compatibility with other resource activities, relationship to the local community and/or American Indian concerns, and the like.

### **c. Demand**

The future demand for cultural resources is likely to be a function of three factors: recreational use, the specific association of a community or ethnic group with an historic site or area, and the development and expansion of archaeological and historical research.

With respect to recreation, the Forest receives approximately 4.9 million Recreation Visitor Days use per year (Recreation Information Management 1986). It is thus likely that interpretive programs and designated historic points of interest would experience substantial public use.

The demand for the protection and preservation of historic/cultural sites and areas because of community associations will probably continue at about the same rate as in the past. Salmon La Sac Guard Station, the Liberty Historic District, and Stevens Pass Historic District were all the products of community efforts to recognize historic values embodied in these properties (Wenatchee National Forest correspondence files). Generally, community associations become known as the Forest Service plans for the disposition of the sites and properties. In addition to the local community interest, there is also a widespread expectation by members of the Colville Confederated Tribes and the Yakima Indian Nation that there will be protection of archaeological sites on the Forest. These properties represent a very special link between the Indians and their ancestors who once occupied the Forest lands. This relationship will continue to reinforce the demand for protection and preservation of these sites.

Research by the scientific community is expanding into the uplands, carrying with it the recognition of the exceptional value of hinterland sites to the reconstruction of prehistoric subsistence patterns. Although requests for research are not anticipated to be frequent, the demand for protection of archaeological and historic sites for future research purposes will likely remain high.

## **4. SCENERY**

### **a. Current Management Program**

The Wenatchee National Forest is well known for its outstanding mountain, valley, and lakeshore scenery.

The Cascades landscapes are distinctive in beauty and nature, with sweeping vistas and a variety of topography, ecotypes, and lifeforms. Natural appearing environments exist on much of the Forest, even where intensive commodity management is occurring. Approximately 63 percent of the Forest, including wilderness areas, are in a natural appearing visual condition.

Visual quality is classified according to the scenic variety of an area and how often it is seen by the viewing public. The most scenic classifications are "preservation", "retention", and "partial retention". Definitions of Visual Quality Objectives and percent of land in each classification under current management are depicted in Table II-5.



**TABLE II-5**  
**EXISTING VISUAL QUALITY OBJECTIVES**  
**1985**

VQO Objectives	Description	Percent of National Forest Land
<b>Preservation (P)</b>	Areas in which only ecological change has taken place except for trails needed for access. They appear to be untouched by human activities.	42
<b>Retention (R)</b>	Areas in which changes in the landscape are not visually evident to the average person unless pointed out. They appear to be natural.	21
<b>Partial Retention (PR)</b>	Areas in which changes in the landscape may be noticed by the average forest visitor but they do not attract attention. The natural appearance of the landscape still remains dominant. They appear to be minor disturbances.	24
<b>Modification (M)</b>	Areas in which changes in the landscape are easily noticed by the average forest visitor and may attract some attention. They appear to be disturbances but resemble natural patterns.	2
<b>Maximum Modification (MM)</b>	Areas in which changes in the landscape are strong and would be obvious to the average forest visitor. These changes stand out as a dominating impression of the landscape. Yet, they are shaped so that they might resemble natural patterns when viewed from 3-5 miles or more distant. They appear to be major disturbances when viewed at closer distances.	11

The most valuable scenery occurs on lands that are distinctive in character and highly visible. The Forest provides the public with seven wilderness areas, six major reservoirs including Lake Chelan, several large natural lakes including Lake Wenatchee, many free flowing rivers, five Washington State "scenic" designated highways, and numerous main travel routes penetrating the Forest toward recreation areas and wilderness. Thirty-four viewsheds and travel routes have been identified as being important recreational travelways on the Forest. Eighteen lakes and reservoirs have been identified as recreational lakes with high visual sensitivities. All major travel routes and lakes are protected with Preservation, Retention and/or Partial Retention Visual Quality Objectives.

#### **b. Production Potential**

Table II-31 shows acres by Visual Quality Objective considered to be the maximum protection of scenic values in addition to the acres under the current program.

The following table shows the existing condition of the Forest landscape which would approximate the maximum potential for scenic quality.

**TABLE II-6**  
**EXISTING VISUAL CONDITION**  
**OUTSIDE OF WILDERNESS**  
**1984**

Description of Visual Condition	Total Forest Lands
Natural appearing landscape	63%
Activities have slightly altered the natural appearing landscape	15%
Activities have altered or heavily altered the natural appearing landscape	21%
Activities have permanently altered the natural appearing landscape (e.g., powerline corridors)	1%

A natural appearing landscape equates with preservation and retention visual quality objectives.

Activities that have slightly altered the natural appearing landscape are associated with partial retention visual quality objectives.

Activities that have altered or heavily altered the natural appearing landscape are associated with the modification and maximum modification visual quality objectives.

**c. Demand**

Recreation Information Management (RIM) data indicates that approximately 12 percent of the 4.9 million visitor days of recreational use in 1986 was driving for pleasure and viewing scenery. Public demand for scenic quality and concern for its maintenance is increasing and is expected to continue to increase over the foreseeable future. Visual quality concerns are highest along the major state routes that criss-cross the Forest; along collector roads accessing wilderness; adjacent to lakes, rivers, and streams; and in areas near recreation sites or communities.

Recreationists intensively use the five highways, 4,667 miles of existing forest roads, and 2,463 miles of trails. These facilities traverse a wide variety of forest and non-forest lands. Of all these lands, the least potential for impact on the visual resource will be within roadless and commercial forest areas that are delineated as "retention" and "partial retention" in the Landscape Management Inventory.

**5. WILDERNESS**

**a. Current Management Program**

Wilderness on the Forest was designated by Congress with the Wilderness Act of 1964 (Goat Rocks and Glacier Peak Wildernesses), the Alpine Lakes Area Management Act of 1976 (Alpine Lakes Wilderness), and the Washington State Wilderness Act of 1984 (Lake Chelan-Sawtooth, Henry M. Jackson, Norse Peak and William O. Douglas Wildernesses). The 1984 Act also added 56,011 acres to the Glacier Peak Wilderness and 13,314 acres to the Goat Rocks Wilderness.

Glacier Peak, Alpine Lakes, Henry M. Jackson and Norse Peak Wildernesses extend across the Cascade Crest into the Mt. Baker-Snoqualmie National Forest while the William O. Douglas and Goat Rocks Wildernesses extend into the Gifford Pinchot National Forest. In the north, the Wenatchee and Okanogan National Forests share the Lake Chelan-Sawtooth Wilderness. Managers of neighboring Forests worked together to develop uniform direction to be used by each Forest for the management of these shared wilderness areas.

Following is the total area for each wilderness area and the amount that lies within the Wenatchee National Forest.

Wilderness	Total Acres	Wenatchee National Forest Net Acres
Lake Chelan-Sawtooth	145,667	56,414
Glacier Peak	576,865	289,001
Henry M Jackson	103,591	27,221
Alpine Lakes	393,360	244,057
Norse Peak	50,923	36,295
William O Douglas	167,195	151,730
Goat Rocks	105,633	36,316
<b>TOTAL</b>	<b>1,543,234</b>	<b>841,034</b>

**b. Production Potential**

The passage of the Washington State Wilderness Act of 1984 stated that the Secretary of Agriculture was not required to review remaining roadless areas for a wilderness option in the current Forest Plan. Due to this provision, the potential production or supply of wilderness for the 10 to 15 years covered by this plan will be the same as under the current management direction. The use potential for the Wenatchee National Forest portions of the existing Wilderness is 1,146,500 RVDs.

**c. Demand**

Table II-7 shows the projected demand compared with the potential supply over the planning horizon

The Forest has the capability to meet the projected demand for wilderness use for some time into the future. However, there are some specific areas in high demand which are currently at or above carrying capacity. One such area is the Enchantments within the Alpine Lakes Wilderness



TABLE II-7

**WILDERNESS RECREATION USE  
ESTIMATED DEMAND AND CURRENT SUPPLY 1/**

	DECADE 1	DECADE 2	DECADE 3	DECADE 4	DECADE 5
Estimated Demand (Thousands of RVD's)	423.5	444.7	454.0	477.0	540.2
Potential Supply (Thousands of RVD's)	<-----1,060,000----->				

1/ Support documents are on file in the Forest Supervisor's Office

## 6. WILDLIFE

### a. Current Management Program

The Wenatchee National Forest provides year around or seasonal habitat for an estimated 394 species of wildlife. Of the 394 species, there are 13 amphibian, 18 reptile, 273 bird, and 90 mammal species. The diversity of vegetation types and plant successional stages on the Forest results in a large variety of wildlife habitats. All of these habitats have been considered in the development of this plan.

### Proposed, Threatened, and Endangered Species

Federally listed threatened, endangered and those proposed for listing that can be found on the Forest are the bald eagle, peregrine falcon, grizzly bear, gray wolf and the northern spotted owl. Current management for the bald eagle and the peregrine falcon is intended to provide the habitat needed for recovery as listed in the recovery plans. The management direction for grizzly bears is to assess the effects of projects on habitat. On June 23, 1989 the US fish and Wildlife Service issued a rule that northern spotted owl will be evaluated for Federal listing as a threatened species pursuant to the Endangered Species Act of 1973, as amended. This ruling upgrades the status of the spotted owl from that of a Region Six sensitive species to that of a federally proposed species.

Bald Eagle: One active nest site and two suspected nest sites have been located on the Forest. A number of bald eagles winter in the vicinity of and on the Forest. Habitat for nesting and roosting includes areas with mature and old growth conifer stands within 1/2 mile of water.

Peregrine Falcon: No active nest sites have been located on the Forest. At least ten potential nests sites have been located on the Forest. Sightings of single falcons are reported yearly in August through October.

Grizzly Bears: Grizzly bears were once found throughout the Forest but now there are only occasional sightings. There are no known den sites of the bear on the forest. There have been

no confirmed Category 1 grizzly bear sightings on the Forest in recent years.

Gray Wolf: The Forest has received unconfirmed sighting reports of gray wolf; however, there are no known resident populations on the Forest.

Northern Spotted Owl: The northern spotted owl is the only species with a specific management program. This program is to maintain the sites needed to meet standards and guidelines in the Final Supplemental to the Environmental Impact Statement For an Amendment to the Pacific Northwest Regional Guide. There are 43 sites outside wilderness. Active nest sites will be maintained while they are in use. All projects will be reviewed to insure they meet the direction for the spotted owl.

There are 521,000 acres of suitable spotted owl habitat on the Forest. Over 200,000 of these acres have dominant trees over 20 inches in diameter. About 149,000 acres of the suitable spotted owl habitat is in wilderness.

Inventories of spotted owls have been completed over the last four years. These inventories include planned timber sales that have been inventoried for occupancy. Results of these inventories include: 140 sites with spotted owl occupancy; 41 sites had active nests; 30 sites contained pairs; and 69 sites had a single owl.

### Sensitive Species

Wildlife species listed as sensitive by the Regional Forester and found on the Forest include: bighorn sheep, Townsend's big-eared bat, Canadian lynx, California wolverine, ferruginous hawk, Swainson's hawk, and the long-billed curlew.

The current management direction for these species is to maintain viable populations and distribution of suitable habitat to prevent them from being listed as Federally threatened or endangered species.

Bighorn Sheep: Three populations of bighorn sheep are known to use the east edge of the Forest. Their habitat includes the steep, open dry

grass/shrub areas, generally below 4000 feet in elevation. Winter range is composed of south facing, open slopes with nearby forest cover.

Townsend's Big-Eared Bat: Boulder Cave on the Naches Ranger District is the only known site on the Forest where these bats are known to exist. There are many rock cliffs on the Forest near this site that contain caves the bats may be using. Population inventories for this species have not been completed.

Canadian Lynx: Canadian lynx have been trapped or sighted on the Forest for many years. The sightings are uncommon with the most recent being on the Cle Elum Ranger District in 1987. Lynx generally use areas of higher elevation dominated by lodgepole pine and subalpine forest.

California Wolverine: There are few reports of wolverine sightings in the Washington Department of Wildlife information system. The species is a resident of boreal forests and is particularly fond of marshy areas.

Ferruginous Hawk: There have been occasional sightings of ferruginous hawks on the Forest. The latest was in the Taneum Ridge area in the fall of 1988. The habitat for this species is found on the east edge of the Forest in dryer, open habitats.

Swainson's Hawk: Occasional sightings of Swainson's hawks on the Forest have been recorded. The habitat for the Swainson's hawk is found on the east edge of the Forest in the dryer sites of open ponderosa pine and Douglas-fir stands.

Long-billed Curlew: There is a limited amount of available habitat for this species on the Forest. The Forest receives few sighting reports of this bird.

### Management Indicator Species

Management indicator species are those whose population parameters appear to show the effects of land management practices on specific types of wildlife habitat. This concept has not been used to manage the Forest previous to this plan.

Rocky Mountain elk, mule deer, primary cavity excavators, northern spotted owl, pileated woodpecker, pine marten, northern three-toed woodpecker, mountain goat, beaver, and ruffed grouse are the wildlife management indicator species for the Wenatchee Forest. Current management direction for big game is found in specific management direction for these species in Chapter IV.

Rocky Mountain Elk: There are an estimated 12,600 elk summering on the Forest. For most of the elk herds, summer range is not a limiting factor, however, the summer range for the Colockum herd is a limiting factor. Winter and spring ranges are limiting for the other elk herds on the Forest. The Washington Department of Wildlife feeds an estimated 15 to 30 percent of the elk wintering near the Forest. An estimated 5,600 elk use National Forest winter ranges.

Open roads and the late hunting season on elk put the animals in a highly vulnerable situation during migration. The Forest and the Washington Department of Wildlife have closed roads on the Naches Ranger District to control hunter access and increase the quality of the hunting experience.

Due to the concerns for elk and elk habitat the Forest Service, Rocky Mountain Elk Foundation, and Washington Department of Wildlife are studying the use of habitats by elk.

Mule Deer: An estimated 25,000 mule deer summer on the Forest. The limiting factor for mule deer population in and adjacent to the Wenatchee National Forest is the availability of winter range. The Forest has approximately 106,000 acres of winter range that is used by mule deer, Rocky Mountain elk, and bighorn sheep. An estimated 10,000 deer utilize winter range on the Wenatchee National Forest.

Primary Cavity Excavators: The Forest has approximately 1,451,000 acres that are capable of providing habitat for primary cavity excavators. Of this acreage approximately 807,200 acres are considered not suitable or unavailable for timber management activities. The amount of dead and defective tree habitat in these areas will remain at natural or near natural levels. The remaining habitat will be affected by other resource management.

In some parts of the Forest where private land and National Forest land are intermingled most of the private lands have or will have little or no dead and defective tree habitat. The primary cavity excavator habitat is currently low and will remain so for several decades.

Pileated woodpecker: There are an estimated 300-500 pairs of pileated woodpeckers on the Wenatchee National Forest. They are often found in mature or old growth conifer habitats. The Forest does not have a population or habitat inventory for this species.

Marten/Northern three-toed woodpecker: For management purposes, these two species have been combined. They are generally found associated with mature or old-growth habitats and are not uncommon. The Forest does not have a population or habitat inventory for this species.

Mountain goat: The population of mountain goats is estimated at 1600. They are well distributed across the Forest in a number of sub-populations. Available habitat is estimated at 400,000 acres. This species is sought after for viewing and hunting.

Beaver and Ruffed Grouse: Beaver and ruffed grouse were selected as the management indicator species for riparian habitats. The Forest has an estimated 159,800 acres of riparian habitat. Over 260 species of wildlife use riparian habitat on the Forest. Most of these species require surface water for survival during summer months. Others such as amphibians use the logs and rocks in intermittent streams where there is enough cover to maintain cool, moist conditions. Both the beaver and ruffed grouse prefer deciduous tree and shrub habitats in riparian areas. The Forest does not have a population estimate for these species.

**Unique or Special Habitats and Species**

Unique or special habitats and species have been identified because of a need to protect them. The habitats and species in this category are: cliffs and rims, ponds, marshes, springs, great blue heron, osprey, goshawks, sharp-shinned hawk, and barred owls (see Chapter III FEIS, Wildlife for more information).

**b. Production Potential**

Production potential is directly related to habitat quantity and quality. The potential of a species may be achieved by natural processes, through careful planning of resource activities, by using habitat improvements, or a combination of all three. Increasing habitat for one species may often increase habitat for other species, but may also decrease habitat for another group of species.

**Table II-8  
Production Potential for Wildlife  
Proposed Threatened and Endangered Species**

<b>Species Name</b>	<b>Estimated Numbers of Species</b>
Bald Eagle	20-50 nests unknown winter birds
Peregrine Falcon	5+ nest sites
Grizzly Bears	20-50 animals
Gray Wolves	1-3 packs
Northern Spotted Owl	150-200 pair

**Table II-9**  
**Production Potential for Wildlife**  
**Sensitive Species**

Species Name	Estimated Populations
Bighorn Sheep	50-200 animals
Townsend's Big Eared Bat	10-50 colonies
Canadian Lynx	100-200 animals
California Wolverine	Unknown at this time
Ferruginous Hawk	2-5 nests 20-30 birds
Swainson's Hawk	1-10 nests 20-50 birds
Long billed Curlew	Unknown at this time

**Table II-10**  
**Production Potential for Wildlife**  
**Management Indicator Species**

Species Name	Estimated Populations
Northern Spotted Owl	150-200 pair
Pileated Woodpecker	3,000-4,000 pairs
Marten	3,000-10,000 animals
Northern Three toed Woodpecker	5,000-20,000 birds
Mountain Goats	5,000 animals
Mule Deer	50,000 animals
Rocky Mountain Elk	20,000 animals
Primary Cavity Excavators	90-100% potential population
Beaver	1,000-2,000 animals
Ruffed Grouse	10,000 + birds

### c. Demand

Demand for wildlife species on the Forest varies by the type of interest, such as viewing or hunting, and the species itself, such as mule deer and pileated woodpeckers. The tables below display the relative demand for each of the species listed. The rating of High, Moderate, and Low is based on the following:

*High* - People design outings or trips to see or harvest a particular species and often remark or keep records of their accomplishments.

*Moderate* - The species is commonly available for viewing or harvesting. No special trips have to be made to view or harvest the animal. People enjoy and remark often when viewing of the animal.

*Low* - People would like to see the animal but they choose to view it only if it happens in the course of other activities. Not seeing the animal does not cause any further pursuing to see it.



**Table II-11  
Demand for Proposed Threatened and  
Endangered Species**

Species Name	Demand for Viewing	Demand for Hunting or Trapping
Bald Eagle	moderate	none
Peregrine Falcon	low	high
Grizzly Bear	low	low
Gray Wolf	low	low
Northern Spotted Owl	high	none

**Sensitive Species**

Sensitive species are either in high demand because they are rare or in low demand because people rarely see them and they are too hard to find .

**Table II-12  
Demand for Sensitive Species**

Species Name	Demand for Viewing	Demand for Hunting or Trapping
Bighorn Sheep	high	high
Townsend's Big Eared Bat	low	none
Canadian Lynx	low	low
California Wolverine	low	low
Fisher	low	low
Ferruginous Hawk	high	none
Swanson's Hawk	high	none
Long billed Curlew	low	none

**Table II-13  
Demand for Management Indicator Species**

Species Name	Demand for Viewing	Demand for Hunting or Trapping
Northern Spotted Owl	high	none
Pileated Woodpecker	moderate	none
Northern Three Toed Woodpecker	moderate	none
Marten	low	moderate
Mountain Goat	high	high
Mule Deer	moderate	high
Rocky Mt. Elk	high	high
Primary Cavity Excavator	moderate	none
Beaver	moderate	moderate
Ruffed Grouse	moderate	high



**Table II-14**  
**Demand for Unique and/or Special Habitats**  
**and Species**

Habitat or Species Name	Demand for Viewing	Demand for Hunting or Trapping
Cliffs and Rims	low	none
Caves and Burrows	low	none
Talus	low	none
Ponds	moderate	high
Marshes	high	high
Springs	moderate	low
Great Gray Owl	high	none
Boreal Owl	high	none
Barred Owl	high	none
Great Blue Herons	high	none
Turkeys	moderate	high
Swifts	low	none
Goshawks	moderate	none
Osprey	high	none
Sharp-Shinned Hawk	low	none
Cougar	high	high
Bobcats	low	high
Moose	high	high

## 7. FISHERIES

### a. Current Management Direction

The Forest has about 241 lakes and reservoirs and 1,770 miles of streams and rivers that support fish. 806 miles of streams and one large lake are available to anadromous fish. Although not confirmed by detailed surveys, it is likely that an additional 260 miles of streams may also provide fish habitat.

Calculation of Recreation Visitor Days (RVD's) in 1986 showed that there were 192,800 days spent fishing or about 580,000 actual fishing trips. Of these, 65 percent or approximately 125,000 days were in roaded areas and 67,000 in roadless areas.

The aquatic habitats support 15 species of cold water game fish and 3 species of warm water game fish (Table II-15). Five species of cold water anadromous and resident salmonoid species account for 95 percent of the angling. Four percent of fishing is distributed among the other cold water species, while less than one percent is spent in warm water fishing.

TABLE II-15

**SPECIES OF GAME FISH  
ON THE  
WENATCHEE NATIONAL FOREST**

COLD WATER ANADROMOUS	COLD WATER RESIDENT	WARM WATER RESIDENT
Chinook salmon	Kokanee salmon	Smallmouth bass
Sockeye salmon	Mountain whitefish	Largemouth bass
Coho salmon	Pygmy whitefish	Yellow perch
Steelhead trout	Golden trout	
	Cutthroat trout	
	Rainbow trout	
	Lake trout (Mackinaw)	
	Brown trout	
	Brook trout	
	Bull trout (Dolly Varden)	
	Burbot (ling cod)	

A primary management consideration of the Forest is the fishing rights reserved to the Indians by the Yakima Treaty of 1855. The Yakima Indian Nation is concerned that the Forest develops environmental standards which ensure the protection and/or enhancement of the fisheries resource.

**-Resident Trout**

Resident trout fishing makes up the majority of the recreational fishing on the Forest and, therefore, its continuance is of major concern. Although most Forest streams have very low productivity due to low nutrient content and cold water, recent measurements of rainbow trout in the Yakima River system (mostly below the Forest boundary) indicate one of the best growth rates documented in North America (A Basic Fishery Management Strategy for Resident and Anadromous Trout in the Stream Habitats of the State of Washington, Washington State Department of Game, October 10, 1984). This may be partially due to the long-term reduction in competition with anadromous fish.

Self-sustaining wild populations of resident trout inhabit most of the Forest's streams. Because of heavy fishing pressure on the roaded portions of the Forest, wild resident trout populations are often supplemented with periodic stocking by the Washington Department of Wildlife (WDW). Some popular rivers stocked with catchable adult fish are the Tieton, Wenatchee, Little Naches, Naches, Chiwawa, and Entiat Rivers and Icicle and Peshastin Creeks. WDW also stocks many suitable high altitude and/or previously barren lakes.

There is one sensitive species on the Forest, the bull trout, listed as a Category 2 species by the U.S. Fish and Wildlife Service.

**-Anadromous Fish**

Four species of anadromous fish, including steelhead trout, chinook, sockeye, and coho salmon, utilize the Forest for spawning and rearing. Numbers of all species except sockeye are less than 10 percent of the historical run levels prior to the construction of irrigation diversions and the mainstem Columbia River dams, and prior to the onset of large commercial fisheries.

The following are the current estimated average anadromous fish escapements attributable to the Forest. Note that some of these returning fish are due to hatchery plants.

TABLE II-16

**ESTIMATED AVERAGE PRESENT  
ESCAPEMENT OF ANADROMOUS FISH ON THE WENATCHEE N.F.  
(TEN YEAR AVERAGE)**

	<b>Sockeye</b>	<b>Coho</b>	<b>Spring Chinook</b>	<b>Summer Chinook</b>	<b>Steelhead</b>
Yakima River	0	20	865	0	129
Wenatchee River	31,785	0	4,270	1,950	1,104
Entiat River	0	0	859	0	500
<b>Total</b>	<b>31,785</b>	<b>20</b>	<b>5,994</b>	<b>1,950</b>	<b>1,733</b>

**b. Production Potential**

The Forest has very few detailed stream or lake surveys to evaluate fisheries production and habitat potential. Therefore, numbers or pounds of fish and habitat capability estimates are only a best approximation based on existing knowledge.

It is felt that many streams on the Forest do not have full escapement of anadromous fish, therefore, numbers of returning adults are not necessarily a measure of the ability of the habitat to produce fish. Smolt habitat capability (SHC) is used as an estimate of habitat potential. The following table reflects an estimate of anadromous fish SHC on the Forest.

TABLE II-17

**ESTIMATED EXISTING SMOLT HABITAT CAPABILITY OF ANADROMOUS FISH  
WITH FULL ESCAPEMENT ON THE FOREST**

	<b>Sockeye</b>	<b>Coho</b>	<b>Spring Chinook</b>	<b>Summer Chinook</b>	<b>Steelhead</b>
Yakima River	1,500,000 <sup>1/</sup>	not	345,000	0	86,000
Wenatchee River	1,795,800	estimated	923,000	645,000	70,000
Entiat River	0		80,000	0	16,000
<b>Total</b>	<b>3,295,800</b>		<b>1,348,000</b>	<b>645,000</b>	<b>172,000</b>

<sup>1/</sup> Assumes passage provided into Cle Elum system

**c. Demand**

The demand for fish, and therefore high quality fisheries habitat, is not readily measurable. For anadromous fish, which are commercially harvestable, there appears to be practically an inexhaustible demand. At one time commercial landings of Columbia River fish were over five times their present level, indicating that demand is very high. Treaty rights reserved in the Yakima Treaty of 1855 include considerable demand for increased fish production over the present.

Resident fish demand is also unquantifiable, but very high. To meet a portion of the demand, the Washington State Department of Wildlife has fish planting programs in streams and lakes. There is no indication that there is a limit to the numbers of fish, of appropriate species and size, that could be harvested (Washington Department of Game, James Cummins, personal communication, March 1985).

Due to the high demand for fish, the maintenance, rehabilitation, and enhancement of fish habitat is of primary concern to the public, tribes, and Federal, State, and local governmental agencies.

**8a. VEGETATION: TREES**

**a. Current Management Program**

Conifer forest ecotypes occupy approximately 69 percent of the Forest. Elevation, soil types, precipitation and aspect combine to create a wide variety of ecological vegetative types. For simplicity, these can be combined into the three following forest ecotypes which occur on both suitable and unsuitable land:

**-Dry Forest**

The low elevation, dry sagebrush, bitterbrush, grass type along the east edge of the Forest changes to the ponderosa pine/Douglas-fir zone with increasing elevation and moisture. Pine-grass, elk sedge, kinnikinnick, serviceberry, and ocean spray are some of the common understory plants.

**TABLE II-18**

**DRY FOREST ECOTYPE  
STAND CLASS DISTRIBUTION**

Stand Size Class	Acres	% of Tentatively Suitable Acres <sup>1/</sup>
Mature Stands	48,399	6.1
Immature Two-Storeyed Stands	106,828	13.5
Pole Stands	91,013	11.5
Seed and Saplings	47,488	6.0
Bare Ground	1,123	.1
Subtotal	294,851	37.2

**-Wet Forest**

The wet forest zone is characterized by a wide variety of plant species. Ponderosa pine and Douglas-fir may be present, but without disturbance they will gradually be replaced by shade tolerant grand fir, silver fir, western hemlock, or western red cedar. Less abundant, but highly valued trees because of their wood and aesthetic qualities, are western larch, noble fir and western white pine. At the upper elevations in this zone lodgepole pine, mountain hemlock, subalpine fir, and Englemann spruce become more prevalent.

**TABLE II-19**

**WET FOREST ECOTYPE  
STAND CLASS DISTRIBUTION**

Stand Size Class	Acres	% of Tentatively Suitable Acres 1/
Mature Stands	191,904	24.2
Immature Two-Storeyed Stands	127,201	16.0
Pole Stands	134,323	16.9
Seed and Saplings	37,269	4.7
Bare Ground	8,162	1.0
<b>Subtotal</b>	<b>498,859</b>	<b>62.8</b>

1/ See Table II-22

**-Sub-Alpine Parkland and Mountain Meadows**

This zone is best known for its wide variety of flowering herbs and forbes. Parklike stands of whitebark pine, Englemann spruce, subalpine fir, and alpine larch adjoin the barren or treeless upper mountain slopes. Much of this zone is in wilderness.

In both the dry and wet zones the most common conifer species is Douglas-fir. However, old-growth ponderosa pine receives the most interest from local sawmills. Douglas-fir and ponderosa pine make up 50 percent of the existing volume of timber on the Wenatchee. The 16 species of conifers in order of standing volume from the 1977 Forest inventory are:



**TABLE II-20**

**STANDING VOLUME OF WENATCHEE NATIONAL FOREST CONIFER SPECIES**

Species	% Standing Volume
Douglas-fir	37%
Ponderosa pine	13%
Pacific silver fir	11%
Grand fir	7%
Lodgepole pine	6%
Western hemlock	5%
Subalpine fir	5%
Western larch	5%
Mountain hemlock	4%
Englemann spruce	3%
Western white pine	2%
Western red cedar	1%
Alaska yellow cedar	1%
Noble fir	
Whitebark pine	
Subalpine larch	

The current timber harvest level as revised after the Washington State Wilderness Act is:

	Million Board Feet	Million Cu. Ft.
Annual sale quantity	170.9	31.4
Unregulated volume	5.9	1.0
	<b>176.8</b>	<b>32.4</b>

**b. Production Potential**

Of the 2,164,180 acres of Wenatchee National Forest, 37 percent or 791,899 are tentatively suitable for timber production. These lands are capable of growing industrial wood and are available and suitable for timber management activities. Table II-22, summarizes Forest land suitability for timber production. (For details of the suitability process see Field Review Timber Land Suitability, Wenatchee National Forest, 1984.)

**TABLE II-22**  
**TIMBER LAND SUITABILITY**  
**ACRES**

	Not Suited for Timber Production	Totals
<b>I. Total National Forest Area</b>		2,457,379
Other Ownerships		293,199
<b>II. Net National Forest</b>		2,164,180
A. Water	11,024	
B. Non-Forest (not stocked with 10% tree cover)	666,828	
C. Lands developed for other than timber production purposes: Ski areas, developed recreation, administrative areas, improved roads, special uses.	35,230	
<b>III. Forested Lands <sup>1/</sup></b>		1,451,098
A. 1. Wilderness	430,788	
2. Research Natural Areas	1,038	
3. Other such as.		
Tumwater Botanical Area	784	
Entiat Experimental Forest	4,219	
Subtotal	436,829	
B. Lands growing less than 20 cu ft./ac./yr.		
1. Lands classified as unsuitable	137,717 <sup>2/</sup>	
2. Lands classified as suitable		(6,148) <sup>3/</sup>
3. Lands classified as separate suitability component	0	
C. Irreversible resource damage (219.14(a)(2))	18,720	
D. Regeneration Difficulty (Reforestation cannot be guaranteed) (219.14(a)(3))	65,933	
E. Regeneration difficulty-lands classified as a separate suitability component	0	
<b>IV. Tentatively suitable Forest Land</b>		791,899
<b>V. Total of Nonsuitable Land</b>	1,372,281	

<sup>1/</sup> Includes Alpine Lakes Management Area Non-harvest land allocations

<sup>2/</sup> Due to reforestation difficulty

<sup>3/</sup> Currently producing less than 20 cubic feet, but can be reforested

When legal and other requirements are met, the suitable lands would be reduced to 689,918 acres. These would have a maximum production potential of 36.5 million cubic feet, or 186.6 million board feet, per year (TSPQ). The ASQ is 34.1 million cubic feet, or 173.8 million board feet per year.

### c. Demand

The demand for wood products from the Wenatchee National Forest in the 1989-1999 decade is obviously difficult to predict. Such influences as the national economy, Canadian log imports, housing starts, exports to Pacific-rim countries, etc., are outside of regional and local control. Other more specific factors will, or could, affect the Forest's programmed harvest and the local wood products industry. These are the effects resulting from: rulings from "old growth" and "Spotted Owl" appeals and court decisions; significant changes in Congressional and Administration direction regarding budgets and targets (outputs); and delays or constraints from new emerging issues which undoubtedly will surface.

Certain localized situations will also have an effect. These include: the accelerated harvest of commercial timber on the private lands ("checkerboard" ownership) within the Forest by Longview Fibre, Boise Cascade, and Plum Creek Timberlands in the next ten years; the potential phase out of antiquated sawmills and the possible construction of new facilities; the continued sale of large volumes of timber by the Yakima Indian Nation from their reservation lands; and the continued close and intense scrutiny of many Forest Service projects by local publics. The various factors influencing the demand for wood products are often conflicting.

It is very probable that the demand for logs from the Wenatchee for the coming decade will continue to be close to the long-term average cut of about 168.6 million board feet per year. During this same period, the sell volume target was 175.9 million (MM) board feet per year, and the average sell was 173.3 MM board feet. The Forest has an uncut timber volume under contract (as of October 1988) of 370 MM board feet. This is a significant reduction from the 850 MM board feet under contract in 1985. This reduction in volume under contract is due to the Timber Relief Act,

and accelerated harvest to meet increase in demand for wood products.

The accelerated harvest of timber from private lands is affecting, and will continue to affect, the demand for timber from the National Forest. Both Longview Fibre and Plum Creek export a significant amount of their logs to the Pacific-rim countries. The pine, smaller logs, and logs which are not "marketable" to export customers at a particular time, are generally sold locally to purchasers who also rely on National Forest timber. The greater the harvest of the major private landowners, the greater is the supply of logs to others. It is very reasonable to assume their activity will continue at a high rate during the decade.

In addition to the private landowners, the Yakima Indian Nation will continue to make timber readily available to traditional purchasers of National Forest timber. They have harvested heavily in the Yakima Basin and are major suppliers of timber to local industry. Their large timber sales will apparently continue because they have become a very important and lucrative source of income for the Nation. In addition, the Nation could understandably view any increase in National Forest timber sales as competition to their own sales. Bureau of Indian Affairs volume for eastern Washington is estimated to be 479 MM board feet per year. This is down approximately 50 MM board feet per year from harvested volumes of the past decade (Larson, 1982). The Washington Department of Natural Resources (DNR) proposed volume from Eastern Washington is 87 MM board feet annually thru 1993 (DNR, 1983). If stumpage prices increase, there exists a strong potential of an increase in yield from other private lands. The Department of Natural Resources projects a strong increase in volume from other private lands that may equal the decreases in forest industry and public timber supplies.

Because of the long distances to major pulp and paper facilities, demand for low quality and small size material has historically been low. Under the 1963 Wenatchee Working Circle Plan, these materials were not counted in calculating the proposed harvest. Since 1963, new industries utilizing smaller logs have been installed in Entiat, Cashmere, Yakima, Ellensburg and Naches.

There also are small business enterprises engaged in producing house logs for homes and cabins. Current central Washington annual mill capacity is 314 MM board feet. Historically such mills rely on the Wenatchee National Forest for approximately 60 percent of their production. This dependency by individual mills ranges from 40 percent to 100 percent (telephone survey, Walk, 1985). Higher prices for quality timber at west side mills often results in the best quality logs being transported to the Puget Sound area. In addition to the log supply for central Washington, a 1980 mill survey found over 13 MM board feet from the Wenatchee going to Puget Sound area mills annually (Socio-Economic Overview, 1982).

The apparent excess demand over supply as measured by full mill capacity is strongly dependant upon price. At low stumpage prices, this would be a good measure of demand. However, when prices rise, some of the more inefficient capacity is not utilized.

In summary, the best estimate of the future demand for wood products appears similar to the harvest level during the past decade. There are no indications that there will be a surge of new mill capacity developed in the area or new markets developed outside the existing area. Any changes in mill facilities will likely be a replacement of antiquated operations with state-of-the-art mills. The exception would likely be the increased utilization and marketing of lodgepole pine and other small diameter logs. Chelan County would be the logical place for an increase in capacity particularly if it were small businesses. The current situation calls for a high market share for small business, but small business manufacturing limited to small quantities and specialty products. The significant amounts of timber volume available from Longview Fibre, Boise Cascade, and Plum Creek lands, as well as continued sales from the Yakima Nation, should make timber supplies readily and competitively available for the first decade. It appears that the second decade is when demand for National Forest timber may increase significantly.

Public demand for firewood permits increased rapidly on the Forest from 1973 through 1981. Introduction of a charge permit system in 1982 resulted in a temporary decrease in permits.

However, in 1984 nearly 10,000 permits were sold, an 8 percent increase over 1983. Income in 1984 from wood permits (four cords for \$10, with a 10 cord maximum) was \$119,745. In 1985, there was approximately 27,000 cords sold with an income of \$151,000. Demand is projected to level off as the quality of available wood decreases.

## **8b. VEGETATION: FORAGE**

### **a. Current Management Program**

The total annual forage production on the Forest is estimated to be 336,000 tons. One-third, or 112,000 tons, is located on steep slopes and 10 percent of this production is considered available to wildlife only. Of the remaining 224,000 tons, reductions are made for plant survival and soil and watershed protection. The total amount available to wildlife and livestock is 65,000 tons or 130,000 Animal Unit Months (AUM's). In 1988, there were 20,900 AUM's used by livestock which allowed 109,100 AUM's for wildlife.

Of the 2,164,180 acres within the Forest, 18.5 percent, or 401,100 acres, is within vegetation types and on slopes suitable for grazing by livestock. There are an additional 500,871 acres outside of wilderness potentially capable of providing livestock forage following silvicultural practices such as regeneration harvests or thinning. The current management potential of the Forest to provide forage for livestock has been calculated at 37,031 animal unit months annually.

Current inventoried range allotment boundaries do not include all of the available and suitable range resource on the Forest (see Table II-23).

### **b. Production Potential**

After considering legal and other requirements the maximum production potential for livestock is between 38,000 to 43,000 animal unit months annually, depending on the amount of temporary range created through vegetative manipulation.

**TABLE II-23**  
**SUITABLE RANGELANDS 1/ AND ANIMAL UNIT MONTHS**  
**AVAILABLE TO LIVESTOCK 2/**

	Number of Allotments	Suitable Rangelands (Acres)	Percent of Suitable Rangelands	Percent of Total National Forest Acres	Estimated Livestock Grazing Capacity (AUM)	1988 Actual Use (AUM)	1988 Livestock Numbers
Inventoried Commercial Livestock Allotments (Cattle, Sheep, and Horses)	40	182,742	45.5%	8.4%	23,210	18,499	1,984 Cattle 8,607 Sheep 87 Horses
Inventoried Recreation Livestock Allotments	36	20,719	5.2%	1.0%	4,307	2,377	13,550 Head Recreation Livestock
Sub Total in Allotments	76	203,461	50.7%	9.4%	27,517	20,876	---
Suitable Range Outside Inventoried Allotments and Outside Wilderness	---	197,639	49.3%	9.1%	9,514	---	---
Total Forest	76	<sup>3/</sup> 401,100	100.0%	18.5%	37,031	20,876	---

1/ Suitable Rangelands are those areas currently producing forage suitable for livestock use on lands less than 60 percent slope.

2/ Animal Unit Month capacities are for livestock only. Total production in pounds per acre have been reduced to reflect needs of wildlife, soil, and watershed protection, in addition to the plant needs.

3/ There are an additional 500,871 acres outside of wilderness that have potential to contribute to the suitable rangeland base after timber has been harvested.

### c. Demand

The "Wenatchee National Forest Socioeconomic Overview" discusses the difficulty of projecting demand due to past variability of the livestock industry. However, it estimates the demand for grazing on the Forest will increase slightly above current levels over the next ten years.

Demand for cattle grazing is expected to be greater than the one to two percent projected increase after the first decade.

The demand for sheep forage is more difficult to project. National demand is down and this trend is expected to continue indefinitely. Locally permitted numbers on the Forest have fluctuated year to year over the past six years. Based on the Five Year Grazing Statistical Report, sheep numbers were down slightly between 1975 through 1980. However, numbers for 1984 were higher than the 1975 level. The demand for sheep grazing on the Forest is expected to remain at or slightly above current levels for the next ten years.

**8c. VEGETATION: UNIQUE ECOSYSTEMS**

**a. Current Management Program**

The Tumwater Botanical Area was established under Regulation T-9(I) on June 10, 1938, for the protection of Lewisia tweedyi. The 1,104 acres was redesignated in 1971 as a botanical area under 36 CFR 251.22 to be managed in a near natural area to protect plant species which occur there.

Although the area is located along a major highway, it is rather inaccessible due to the steep, rugged terrain. It is usually visited only by people who wish to view or study the unusual species that inhabit the area including: Lewisia tweedyi, Hackelia venusta, Silene seelyi, and Chaenactis ramosa. The area is within Sections 28 and 34, T.25N., R.17E., P.M.W, and is approximately four miles north of Leavenworth, Washington, in the Tumwater Canyon.

**b. Potential Areas**

The following four additional Botanical Areas and four Geologic Areas are proposed for protection by some publics.

Camas Botanical Area - Located on the Leavenworth Ranger District in Section 32, T. 23 N., R. 18 E., and Section 4, T. 22 N., R. 18 E., and is approximately 800 acres in size. Protection is proposed for Delphinium viridescens, Wenatchee Larkspur, which is one of two State and Federal candidates to the endangered species list.

Gene Creek Botanical Area - Located on the Entiat Ranger District in Sections 8, 17, and 20, T. 27 N., R. 20 E., and is 1,930 acres in size. Protection is proposed for a ponderosa pine ecosystem containing old-growth dependent animals and plants.

Hornet Ridge Botanical Area - Located on the Entiat Ranger District in Sections 4,5,6, and 10, T. 26 N. R. 19 E., and is approximately 2,100 acres. Protection is proposed for the park-like stands of ponderosa pine containing old-growth dependent animals and plants.

Lake Creek Botanical Area - Located on the Entiat Ranger District in Sections 27, 28, 33, and 34, T. 29 N., R. 19 E., this area is 212 acres. Protection is proposed for plants associated with an undisturbed wetland habitat.

Kloochman Rock Geologic Area - Located on the Naches Ranger District in Sections 4, 5, 8, and 9, T. 13 N., R. 14 E., it is approximately 340 acres. Protection is proposed for a unique geologic feature.

Goose Egg Mountain Geologic Area - Located on the Naches Ranger District in Sections 31 and 32, T. 14 N., R. 14 E., and Sections 5 and 6, T. 13 N., R. 14 E., it is approximately 635 acres. Protection is proposed for this unique geologic feature.

Rimrock Geologic Area - Located on the Naches Ranger District in Sections 25 and 36, T. 14 N., R. 13 E., and Sections 30 and 31, T. 14 N., R. 14 E., it is approximately 425 acres in size. Protection is proposed for this unique geologic feature.

Blue Slide Geologic Area - Located on the Naches Ranger District in Sections 28, 29, 32, 33, and 34, T. 13 N., R. 13 E., and Section 4, T. 12 N., R. 13 E., and it is approximately 740 acres. Protection is proposed for this unique geologic feature.

**8d. VEGETATION: THREATENED, ENDANGERED, AND SENSITIVE PLANTS**

**a. Current Management Program**

The Forest has a large variety of uncommon and unusual plant species. These species exist here because of atypical geologic substrates, various past glacial activity and the past and present climatic regimes.

Soil parent material formed from serpentinite and sandstone result in unique habitats for plants that are found no where else. The northern part of the Forest was affected by continental glaciation while the southern part was not. This has multiplied the number of possible habitats thereby increasing the variety of plants species. The results of this differential glaciation has made the mountains around Wenatchee the home of some of the most unusual plants in the state. Finally,

climatic regimes on the Forest are numerous; ranging from a near continental climate in some areas to essentially a maritime climatic pattern in other places.

Although there are no known Federally listed threatened or endangered plant species on the Forest there are 50 plants on the Region 6 sensitive plant list (Table IV-10, Chapter IV). Of these 50 species, 7 are candidates for proposal for listing as endangered or threatened and the remaining are listed by the State of Washington.

The extent of the populations of Threatened, Endangered or Sensitive (T, E or S) species on the Forest is not fully known. Therefore, before a project is initiated, inventories to determine the presence and extent of these species in the project area are conducted on a priority basis. Forest Service policy requires the maintenance or enhancement of all populations of T, E or S species. All necessary measures are taken to assure that management activities do not adversely affect these species.

## **8e. VEGETATION: RESEARCH NATURAL AREAS**

### **a. Current Management Program**

Research Natural Areas (RNA's) are part of a Federal system of tracts established for non-manipulative research and educational purposes. Each RNA is a site where some features are preserved for scientific purposes and natural processes are allowed to dominate. Their main purposes are to provide: (1) baseline areas against which effects of human activities can be measured; (2) sites for study of natural processes in undisturbed ecosystems; and (3) gene pool preserves for all types of organisms, especially those which are classified as rare and endangered (Dryness, et al. 1975, also see Forest Service Manual 4063.02).

Prior to establishment, a comprehensive Establishment Record is made. For RNA's proposed on National Forest System lands, the Record is submitted to the Chief of the Forest Service for approval.

### **Established RNA's**

There are two established RNA's on the Forest. Meeks Table RNA on the Naches Ranger District is 64 acres and represents the ponderosa pine/ pine grass plant community with a co-dominance of Douglas-fir. It was established on July 7, 1948, and is now within the William O. Douglas Wilderness.

Thompson Clover RNA located in Swakane Canyon on the Entiat Ranger District is 276 acres in size and exemplifies a plant community characterized by Thompson Clover. It was established on February 17, 1977.

### **Formally Proposed RNA's**

The Research Natural Area Committee for the Pacific Northwest has formally proposed two additional RNA's. Eldorado Creek located in the Teanaway drainage of the Cle Elum Ranger District is 1,336 acres in size and represents a plant community found on serpentine derived soils. The Eldorado Creek area was designated as a Special Area (Proposed RNA) in the Alpine Lakes Management Plan (November 2, 1981).

Fish Lake Bog on the Lake Wenatchee Ranger District is a 106 acre area on the west end of Fish Lake near Lake Wenatchee. This represents a floating bog community.

Preliminary Establishment Records have been made for both of these areas; Fish Lake Bog on July 5, 1979, and Eldorado Creek on August 9, 1972. A supplemental report on the mineral character of the proposed Eldorado Creek RNA was made on November 6, 1974.

### **b. Potential Program**

#### **Recommended RNA's**

The Research Natural Area Committee for the Pacific Northwest Region determined that the candidate RNA's listed in Table II-24 represent the best examples of particular kinds of natural ecosystems in the Region and are needed to meet present and future demands. There may be some

future RNA needs that can best be satisfied on the Wenatchee National Forest. When suitable new areas are identified, they will be considered for addition to the Research Natural Area inventory.

**TABLE II-24**  
**RECOMMENDED RESEARCH NATURAL AREAS**  
**1984**

Name	Area (Acres)	Location (District)	Plant Community Exemplified
* 1. Cedar Creek	2205	Naches	Mixed old-growth conifer/shrub forest and Pacific silver fir forest.
** 2. Icicle/Frosty Creek	784	Leavenworth	Western red cedar/western hemlock forest.
** 3. Chiwaukum Creek	1124	Leavenworth	Grand fir mixed old-growth conifer/shrub
4. Drop Creek	530	Cle Elum	Englemann Spruce/Subalpine fir forest

\* Within the William O. Douglas Wilderness

\*\* Within Alpine Lakes Wilderness

**Steps in Establishment of RNA's:**

1. R-6 Research Natural Area Committee working in conjunction with the Washington Natural Heritage Plan (Department of Natural Resources, 1985) identifies the need for a site representing a specific natural ecosystem.

2. This committee then works with the area ecologist and ranger district personnel to identify several potential representative sites.

3. The committee visit and evaluates the sites and narrows the list down to the most representative site.

4. This site is then recommended through the Forest Plan for establishment as an RNA.

5. If the area is allocated as a proposed RNA by the alternative in the Forest Plan which is implemented, then an establishment report is developed.

In the past, ranger district personnel have worked with personnel from the Pacific Northwest Forest and Range Experiment Station in the development of this report.

6. The approval procedure for an RNA Establishment Report is as follows:

- District Ranger - Review and Recommend
- Forest Supervisor - Review and Recommend
- Pacific Northwest Station Director - Review and Recommend
- Regional Forester - Review and Recommend
- Director of Division of Recreation - Review and Recommend
- Deputy Chief of Research - Review and Recommend
- Chief, U.S. Forest Service - Approve

7. Upon approval by the Chief, the area is designated as a Research Natural Area and will be managed accordingly.

**8f. VEGETATION: ENTIAT  
EXPERIMENTAL FOREST**

**a. Current Management Program**

The Entiat Experimental Forest includes 4,620 acres of Forest lands located within the Entiat River drainage northwest of Wenatchee, Washington. Research has been conducted on the area since 1957; in 1971, it was formally designated as an Experimental Forest. The Pacific Northwest Forest and Range Experiment Station and the Wenatchee National Forest cooperatively administer the area with the primary goal of providing opportunities for studying the effects of forest management and fire on vegetation, soil, and water resources. The area was selected as being representative of steep, forested watersheds occurring along the east slope of the Cascades. It consists of three similar, contiguous watersheds ranging in size from 1,168 acres to 1,393 acres, and in elevation from 1,800 feet to 7,000 feet. The mean slope is 50 percent with slopes as steep as 90 percent.

A major wildfire which burned most of the area in 1970 has had a dramatic impact on Forest vegetation. Pre-fire vegetation was primarily undisturbed, mature forest with small, subalpine grass-forb openings and bare rock. About 75 percent of the Forest was classed as ponderosa pine, with Douglas-fir the main associated species. Thickets of dense lodgepole pine occurred on wetter sites at higher elevations. Important understory species included bitterbrush, snowbrush ceanothus, pinegrass, and numerous forbs. Fifteen years after the fire, the vegetation consists of a mosaic of shrub fields intermixed with planted pine and fir, and dense, young stands of naturally-established lodgepole pine. Scattered remnants of unburned old-growth forest occur on rocky ridges and outcrops.

The original research plan for the experimental watersheds was to develop baseline information on climate and hydrology under natural conditions, then test for changes following the construction of roads and implementation of several timber harvest practices. The collection of this information and the preparation of harvest plans were nearly complete when the watersheds burned.

Fire is a common occurrence in this Forest, hence research objectives were quickly changed to utilize the preburn data to evaluate effects of fire on the environment and the alteration of those effects by the re-establishment of forest vegetation. Initial postfire studies provided land managers, resource specialists, and scientists with a better understanding of the hydrologic response of burned watersheds including water yield and physical water quality; chemical water quality and site productivity in response to wildfire and erosion control fertilization, natural vegetation recovery and the effectiveness of erosion control seeding and fertilization treatments; soil and water responses to several methods of timber salvage; and effects of a large wildfire on local and regional economics.

**9. WATER**

**a. Current Management Program**

The Forest is an extremely important source of high quality water for all types of uses. The water produced on the Forest maintains components of the natural ecosystem, including vegetation, fish and wildlife. Water also serves the administrative needs of the Forest Service and is used both on and off Forest for domestic, municipal and industrial purposes, stock watering, irrigation, power generation and recreation.

The majority of the Forest lies within four sub-basins of the Columbia River Basin: Chelan, Entiat, Wenatchee and Yakima Rivers. There are an estimated 3,600 miles of perennial streams on the Forest, with 806 and 963 miles of Class I and II streams, respectively. The Forest contains hundreds of lakes, ponds and springs that receive a variety of uses. There are an estimated 57,000 acres of lakes and reservoirs on the Forest.

Sampling of water quality to monitor background levels and effects of management activities began on the Forest in 1966. Monitoring of the Forest's 25 major watersheds between 1967-1980 involved nearly 20,000 samples. This data suggest that the Forest has been complying with State water quality standards; however, some measurements document conditions outside of these standards.

## WATER

Refer to the Forest Water Quality Data Summary (in preparation) for details regarding this water quality data base.

The goal of project planning and implementation on the Forest has been to meet or exceed water quality standards and the State's Forest Practices rules and regulations. Regional recertification of Forest Service management practices is needed now in order to evaluate compliance of these practices with the recent major revisions of the State Forest Practices Rules and Regulations.

### **b. Production Potential**

The Forest annually contributes approximately 4.455 million acre feet of high quality water to area streams, rivers, lakes, reservoirs and ground-water aquifers. Runoff is orderly in most years with two typical annual peak flows--the highest in late May and a secondary peak in July. Maximum peak flood volumes historically occur in December, often associated with temperature inversions and rain-on-snow events. Unregulated runoff during low flows is sustained by the gradual melting of the winter snow pack.

Water benefits and utilization are enhanced through regulation facilities such as reservoirs operated by the Bureau of Reclamation. Summer streamflows are enhanced in several areas on the Forest through releases of stored water from six major reservoirs for irrigation and power production. The mean annual storage for these six impoundments over the 10 year period between 1967 and 1977 was 1,360,800 acre feet.

Water yield increases result from vegetation manipulation, such as timber harvest. However, these increases are only temporary (less than 20 years) unless the land use changes, as with a conversion of timber to pasture land. The amount of change in total yield is often overstated. Yield increases due to timber harvesting are masked by the large magnitude and variability of natural water yield.

### **c. Demand**

Water has a primary importance for all types of uses both on and off the Forest. The water on the Forest is essential for maintaining components of natural ecosystems, including vegetation, fish and wildlife. High water quality is important for a healthy aquatic environment necessary for maintaining populations of resident and anadromous fish on the Forest. Many recreational activities are directly or indirectly water based such as fishing, boating, camping and sight-seeing. Streams and lakes on the Forest are heavily used for sport fishing.

Forest watersheds provide 95 percent of the water used for irrigation and domestic water systems in Chelan, Kittitas, and Yakima Counties. This region has a long growing season with productive soils upon which many potentially valuable crops are grown. The downstream use of water emanating from the Forest has continued to increase dramatically over the past two decades. The Yakima Basin irrigators diverted 2.4 million acre feet of water to produce a crop value of \$234,500,000 from 225,225 acres in 1981. (Source: 1981, Crop Production Reports--Yakima and Columbia Basin, Bureau of Reclamation).

Existing and foreseeable water shortages in the lower Yakima River are being identified through the on-going water rights adjudication in that sub-basin. It is improbable that potential irrigation water requirements on the Yakima Indian Nation Lands will be met with existing water storage facilities. Additional storage development would be required to produce an additional 200,000 acre feet annually. Most of this development would occur on the Forest, affecting a wide range of other resources. At present, conservation measures pose a more cost effective and environmentally sound approach to water use management in the drainage.

Forest watersheds provide domestic water for cities, small communities, organization sites, special use summer homes, and recreation areas. Municipal watersheds on the Forest are managed for the complete range of multiple use activities. Water emanating from these drainages must be suitable for domestic use with cost effective treatment procedures. In most cases, the application

of multiple-use management will provide the needed protection of water quality in municipal watersheds.

Instream flows within the National Forest boundary have not been a critical issue. The Forest currently has sufficient stream discharge emanating from unregulated water sources so that requirements for instream or minimum flows on the Forest are not anticipated in the short term. There has been some concern regarding the potential impact of proposed small hydroelectric projects to reduce streamflows to a volume that could adversely affect channel maintenance processes and aquatic habitat.

Current Forest resource management activities require water use at nearly 825 designated points of use. All non-Reserved Forest water uses have Certificates of Water Rights or have applications pending with Washington State's Department of Ecology.

## **10. SOILS**

### **a. Current Management Practice**

The soils and all related soil properties on the Forest are highly variable, depending on the interaction of climate (precipitation and temperature) topography (slope, aspect, and elevation), parent material, organisms (both vegetative and animal), and the length of time that the soils have been in place. Soil supports and forms the base for all components of the natural ecosystem. Forest soils act as the sponge that holds and cleanses large amounts of water that is so important for the maintenance of natural ecosystems and for public domestic, agricultural, recreational, and power uses.

The soils on the Forest fall into three general categories: those that are residual (formed in place); those that have been transported by ice or water (glacial till, outwash, alluvium, etc.); and those that have been transported by air (pumice, volcanic ash, loess, etc.). Most of the soils on the forest have been influenced by and have at least some volcanic ash in the surface horizon. In the northern part of the Forest (east of Glacier Peak)

there is a large block of soils that have formed in deep deposits of volcanic ash and pumice. Most of the major river basins on the Forest have been influenced by alpine glaciation, the effects of which are much more pronounced in the northern half of the Forest. All of the transported materials overlay something else, so that these soils all tend to be younger than most of the soils that have formed in residuum (formed in place from bedrock). Bedrock materials from which soils have formed include: basalt, andesite, rhyolite, granite, granodiorite, schist, gneiss, sandstones, and pyroclastics. In fact, there are sub-divisions (geologically) of many of these major rock types, so the variation in soil properties caused by geologic differences are wide.

Most of the granitic materials are located in the northern part of the Forest, and most of the extrusive igneous (basalt, andesite, etc.) occur in the southern part of the Forest. The sedimentary (sandstones) occur in the mid and southern parts of the Forest.

### **b. Demand Potential**

The demand is great to maintain productive soils that can support other resources. Maintaining soil productivity is mandated by the National Forest Management Act. Minimizing soil erosion and soil compaction, along with maintaining or enhancing soil nutrient level, is very important if this is to be achieved.

## 11. AIR

### a. Current Management Program

The management of air as a resource for which the Federal Land Manager has responsibility has developed rapidly in the past twenty years. The Clean Air Act (CAA) 1967 and the amendments to the Act (1972 and 1977) have mandated that managers of the National Forests take specific actions in conjunction with other Federal, State, and Local agencies to maintain or improve air quality.

The Environmental Protection Agency (EPA) was assigned the responsibility to develop the National Ambient Air Quality Standards (NAAQS). The states became responsible for developing a State Implementation Plan (SIP) to maintain or improve air quality. The 1977 supplement required the states to add a section to their SIP which addressed the Prevention of Significant Deterioration (PSD) as well as visibility within the Federally designated Class I areas (See Section 162 CAA, August, 1977, for a definition of Class I areas). The continuing evolution of this legislation has guided the development of the Air Resource Management Program on the Wenatchee National Forest.

The managers of the Forest have worked with the State of Washington to ensure our resource management projects are in compliance with the SIP. Most of the work has been to assure that our prescribed fire program complies with the direction outlined in the SIP. One of our major efforts has involved the protection of visibility within the three Class I Areas (Alpine Lakes Wilderness, Glacier Peak Wilderness, and Goat Rocks Wilderness) on this Forest and those Class I areas adjacent to this Forest. These efforts have developed to where smoke management is now an integral part of our prescribed fire program.

During the past two years funding has become available to begin the design of a process to measure Air Quality Related Values (AQRVs). The Alpine Lakes Wilderness has been picked as the pilot Wilderness in the Pacific Northwest for which baseline data on the chemical composition of the atmosphere will be collected. It is expected that the first measurements will occur during the 1989 field season.

The monitoring of visibility has been on going since 1983, and several sites have provided data that is applicable to the Class I areas on this Forest.

Interagency Air Resource Management continues to become a larger part of the Forest Management Program. During the next few years a rapid increase in the site specific data available regarding the chemical composition of the Forest's Air resource is expected.

### b. Production Potential

We currently do not have the skills available to attempt to quantify the amount of clean air "produced" on the Forest. Future quantification of the potential to change the chemical composition of the atmosphere may influence our vegetative management practices.

### c. Demand Potential

The value of clean air is being realized in our society. As urbanization increases in the Puget Sound the public is expected to demand that the forests be managed in a manner that view air as an essential component of the resource base and mandate that our National Forests be managed in a manner that provides this resource in much the same manner that it is expected to provide clean water.

## 12. MINERALS

### Overview

The geology of the Forest is lithologically, mineralogically and structurally very complex. Because of its geologic complexity, the Forest has potential for the occurrence of a variety of mineral resource commodities including, but not limited to, gold, silver, copper, lead, zinc, geothermal, coal, limestone, asbestos, garnet, pumicite, oil and gas, etc. Because mineral commodities are classified by law into three distinct groups (locatables, leasables, and salables), the way each group is

managed and the authority of the Forest Service to control the exploration for and development of each commodity varies somewhat. However, the management objectives for all three types of mineral resources is the same and is summarized as follows:

1. Encourage and facilitate the orderly exploration, development, and production of mineral and energy resources within the National Forest System in order to maintain a viable, healthy minerals industry and to promote self-sufficiency in those mineral and energy resources necessary for economic growth and the national defense.

2. Ensure that exploration, development, and production of mineral and energy resources are conducted in an environmentally sound manner and that these activities are integrated with the planning and management of other National Forest resources.

3. Ensure, that lands disturbed by mineral and energy activities are reclaimed for other productive uses.

#### a. Locatable Minerals

##### 1) Current Management Program

Examples of locatable minerals occurring on the Wenatchee National Forest include, but are not limited to, copper, gold, molybdenum, iron, chromite, nickel, zinc, silver, lead and uncommon varieties of limestone, gemstones, and other minerals that have unique and special values. Forest Service control is accomplished by reviewing plans of operation in a timely manner, by approving only those activities that are reasonably necessary for the proposed operation, by ensuring environmental protection standards are met, and by ensuring that prompt reclamation of disturbed areas is accomplished.

The Forest has approximately 11,000 mining claims covering 200,000 acres properly recorded. Only a very limited number of these claims will actually experience exploration and development activities. At present, even though there is a relatively high amount of on-going exploration, prospecting and mineral related recreation activities, mineral production activity from the Forest is relatively minor in scope.

Designated wilderness areas and other withdrawn areas are not open to mining claim location. Such areas presently constitute about 42 percent of the total Forest area. These areas, however, are subject to valid existing rights perfected prior to the date the area was withdrawn. Some of these areas are known to be encumbered by unpatented mining claims. As a consequence, even though the areas are withdrawn, they could be subjected to the possible effects of mining. Before any mining is permitted in these areas, an evaluation will be made to determine if valid rights exist.

##### 2) Production Potential

A mineral resource overview has been prepared to assess the present and future potential for the development of locatable mineral resources on the Forest. Maps depicting the areas of potential are available in the FEIS. In summary, the overview indicates that the Forest has potentially significant occurrences of copper, gold, molybdenum, silver, lead, zinc, tungsten, iron, chromium, nickel, mercury, and manganese, in approximate decreasing order of importance. The Forest also contains potentially commercial deposits of bentonite, feldspar, limestone and garnet. The other nonmetallic minerals of a locatable nature reported either have no apparent commercial potential, or are of interest only to collectors.

Depending upon the results of on-going exploration and development activities and on changes in the volatile nature of the mineral's supply/demand situation, the level of activity could change drastically over a short period of time.

At the present time, it appears that exploration and development activities in the area are concentrating on precious metals, and of these gold appears to be of most interest. The interest can be attributed to two things: (1) anticipation of higher gold prices; and (2) major improvements made in recovery technology. The areas most likely to be explored for gold within the next few years include the Horse Lake Mountain and Blewett areas on the Leavenworth Ranger District, the Swauk Creek area on the Cle Elum Ranger District, the Entiat Ridge area near the Lake Wenatchee Ranger District and the Red Top Mountain and south Mt. Stuart batholith areas of the Cle Elum Ranger District.

Silver-based metal mineral resources on the Wenatchee National Forest, with one exception, appear to be low grade and of small volume relative to grade. These probably will require supply constraints and significant price increases in order for development to take place. The exception is the Chelan-Sawtooth area where evidence is emerging which indicates the occurrence of a medium to high grade silver-lead-zinc deposit.

Nonmetallic mineral resources of possibly a locatable nature include feldspar, garnet, limestone, silica and bentonite deposits. Of these, the Wenatchee Ridge feldspar deposits appear to have the most potential for future development. Actual development of these commodities will depend more upon processing technology, commodity research, and the establishment of markets, than on exploration and development activities.

### 3) Demand

At present, the Forest processes approximately 100 notices of intent to operate and plans of operation per year. In addition to this, it responds to more than 500 public inquiries concerning mineral resources and conducts numerous administrative reviews and compliance checks. Considering Bureau of Mines predictions of a 1.0 to 2.2 percent increase in demand for mineral commodities, it is assumed that this level of activity will continue or increase slightly over the next 10 years. Should the availability of non-domestic sources of metallics (especially gold, silver, copper and chromium) change, then the demand for the Forest's sources of these commodities would increase significantly. Because of these trends and the vulnerability of non-domestic sources, locatable mineral related activities (claim staking and maintenance, exploration, development, panning, sluicing, suction dredging and rock-hounding) is expected to remain at a relatively high level throughout the next 10 years. Should exploration activities being conducted on the Forest prove positive and mineralization similar to that at the Cannon Mine near Wenatchee be

identified on the Forest, or should the availability of non-domestic sources of metallics change, then larger-scale locatable mineral activity accompanied by production will increase significantly.

### b. Leasable Minerals

#### 1) Current Management Program

Leasable minerals are those mineral commodities which may be acquired under the Mineral Leasing Act of 1920, as amended. On the public lands of the Wenatchee National Forest, they include coal, oil, gas and geothermal resources. On "acquired" lands, however, all minerals except salables are leasable. These minerals are subject to exploration and development under leases, permits, or licenses granted by the Secretary of Interior. Leasing is presently administered by the BLM in cooperation with the Forest Service. The following table summarizes Forest Service mineral leasing responsibilities for the public land it administers:

**TABLE II-25  
MINERAL DISPOSAL AND ACTIVITY RESPONSIBILITIES**

<b>Commodity</b>	<b>Public Domain - Administered by the FS</b>	<b>Acquired Lands - Administered by the FS</b>	<b>Preliminary Prospecting Permits</b>
Oil and Gas	BLM requests FS consent for leasing	BLM requests FS consent to lease and FS concur	FS has authority to issue a permit
Coal	BLM requests FS consent to lease and permit to operate	BLM requests FS consent to lease and permit to operate	FS permit specifically prohibited
Hardrock Minerals	Locatable--Nondiscretionary	BLM requests FS consent to issue a prospecting permit, to lease and to operate	FS has authority to issue a permit
Geothermal	BLM requests FS consent to lease and to operate	BLM requests FS consent to lease and to operate	FS has authority to issue a permit

As with the locatable minerals, wilderness areas and certain other areas are withdrawn from mineral leasing. On those lands which are not withdrawn from leasing, recommendations concerning their availability for leasing, and concerning the environmental protective measures which should be attached to a lease, will be based on the environmental conditions and the management objectives adopted for the land upon which an application has been received.

## 2) Production Potential

Even though there are no leasable mineral commodities presently being produced on the Forest, revenue produced from mineral leasing during FY-85 was \$215,676. This represents rental returns only. Should production begin, royalties would increase this revenue substantially.

Portions of the Forest have been classified by the Bureau of Land Management (previously USGS and Mineral Management Service) as being prospectively valuable for oil, gas, coal and geothermal resources. Those areas classified prospectively valuable for leasable minerals are considered to have at least a "moderate" mineral potential for future production until exploration proves otherwise.

As a result of BLM's leasable mineral classification efforts, 212,044 acres on the Forest are considered prospectively valuable for oil and gas resources, 599,902 acres are classified prospectively valuable for geothermal resources, and 540,350 acres are classified prospectively valuable for coal resources. Of the area classified prospectively valuable for oil and gas, 73,565 acres have been identified as an "area of critical mineral potential" for its oil and gas resource potential.

Recent exploration drilling conducted on lands lying to the east of the Forest has encountered very good shows of gas, though apparently not in commercial quantities. Even though oil and gas resources are not presently known to exist on the Forest in commercial quantities, based upon the results of off-forest exploration it is assumed that the Forest does have potential for the occurrence of petroleum resources.

As with oil and gas, geothermal resources are not known to occur on the Forest in commercial quantities. However, parts of the west one-third of the Forest have been classified "prospectively valuable" for the resource. Pending the acquisition of additional subsurface data, it presently appears that the highest potential for geothermal resources is limited to the high Cascades in the southern part of the Forest.

## MINERALS

A large portion of the Forest has been classified "prospectively valuable" for coal resources, while a smaller area near Cle Elum has been classified as a "coal resource area". Even though these deposits contain 41,000,000 tons of "measured", "indicated" and "inferred" resources classified as high-volatile "A" bituminous coal, it does not appear that their development is likely in the near term.

### 3) Demand

None of the existing or terminated leases have been producers, but they do indicate an interest in the area's potential. It appears that the leasing cycle, however, is in a downturn mode and without some important discovery, the area leased is expected to remain below 200,000 acres at least for the foreseeable future. In addition to the oil and gas leases, a total of 24 geothermal lease applications covering 56,350 acres were filed for in the White Pass and Cougar Lakes area. Since most of the applications lie within areas designated as wilderness under the Washington State Wilderness Act of 1984, they have either been rejected or withdrawn. There are presently no coal leases or pending lease applications, and it appears unlikely that there will be any interest in leasing the coal on the Forest over the next 10 years.

Barring any significant discoveries off-Forest, oil and gas activity on the Forest over the short-term is expected to remain relatively low and will be dominated by leasing actions and exploration activities. Based upon available data, it appears that geothermal resource related activities conducted on the Forest in the short-term will be dominated by geophysical investigations and possibly exploration. Relatively small-scale direct use development is possible, but large scale development is not anticipated. In response to changing energy demands, considerable attention has recently been focused on the production of methane from unmined and unmineable coal seams in Washington. Since this type of development will depend on detailed investigations of the resource and on future technological improvements in recovery methods, it is unlikely that such development will occur within the next ten years.

## c. Salable Minerals

### 1) Current Management Program

Salable minerals are common varieties of sand, stone, gravel, pumice, pumicite, cinders and clay. In general, these minerals are of widespread occurrence and are of relatively low unit value. They are generally used for construction materials and for road building purposes, however, they may be used for decorative purposes as well. These minerals are sold, rather than being leased or located, and their disposal is totally at the discretion of the Forest Service (see regulations in 36 CFR part 228). Management of operations on permit areas is similar to the management of leasable mineral activities.

### 2) Production Potential

The Forest maintains a detailed inventory of rock sources. This inventory, which identifies the location, type, quality and quantity of rock available at each source, is available at Ranger District Offices. The potential for developing this mineral resource is highly controlled by the deposit's geographic location relative to population centers or areas of use (road construction, timber harvesting activities, bridge and dam construction, etc.), and on the availability of funding for construction projects. There appears to be an adequate supply of crushable rock sources throughout the Forest to accommodate any anticipated demand. However, good quality sand and gravel is in short supply.

### 3) Demand

The total production of sand and gravel and stone during the period from 1973 to 1984 was approximately 3.8 million tons, which has an estimated value of 8 to 10 million dollars. The annual average production since 1973 has been about 320,000 tons. However, demand has lessened the last few years in response to the reduction in road construction activities. The Forest presently issues 50 to 100 permits annually to the public for the removal of 6,000 to 25,000 tons of cinders, pumice, rock, sand and gravel. The dominant market for mineral materials, however, is in

support of the Forest's timber management program and for public works projects. To support these activities, an additional 100,000 to 300,000 tons of various common variety mineral resources are removed annually. Since demand for these mineral commodities is highly influenced by the location of the resource, the health of the timber industry and its associated timber harvesting activities, and on the availability of capital for construction projects, it is difficult to predict what the future demand will be. Based upon available data, however, the demand has lessened over the last 2 years and it appears that the demand on a Forest-wide basis will not increase significantly over the next 10 years. On a local basis, if specific projects are approved and funded, the demand could increase appreciably.

**d. Recreational Minerals**

**1) Current Management Direction**

Those collectible minerals of a "locatable" nature are removed from valid mining claims under the authority of the Mining Law of 1872, whereas removal of more than nominal amounts of the common variety minerals requires that a permit be issued. In either case, if significant surface resource disturbance might be caused, a notice of intent or plan of operation must be filed and approved. If suction dredging or stream alteration is involved, hydraulic project approval must be obtained from the State. Since managing this type of activity in the past has not been a significant problem and it is not anticipated to become a problem in the future, current management practices will continue. There does appear to be some interest in the opportunity to allocate lands specifically for rockhounding and mineral collecting purposes. Other than for those areas identified in the Alpine Lakes Management plan (Redtop Mountain area and portions of Peshastin, Negro and Ruby Creeks), no areas will be withdrawn and specifically managed for this type of recreational activity.

**2) Production Potential**

Even though there are about twenty types of minerals recreationally collected on the Forest, placer gold, agate, quartz crystals, garnet, talc or soapstone, olivine, rhyolite, pyrite, rhodenite and actinolite appear to be the main targets of collectors. The areas experiencing the most activity of this nature appear to be the Red Top, Big Creek, Kachess Lake, White River, Cle Elum Lake, Peshastin, Negro, Ruby and Swauk Creeks, Wenatchee Ridge, Manastash Creek and Deep Creek areas. However, there is also interest in other localized areas. The potential for the mineral resources of this type to accommodate the recreation demand for them has not been assessed.

**3) Demand**

It is anticipated that the recreational mineral related activities will continue at or increase slightly above the present level. Any large increases in the price of gold, however, would be accompanied by significant increases in panning, sluicing, and suction dredging activities of a recreational nature.

**13. LAND STATUS**

**Background**

About 293,199 acres, or 12 percent of the land within the Forest boundary, is not National Forest land. Many of these lands are in a "checkerboard" ownership pattern, affecting about 25 percent of the Forest. Most of this checkerboard ownership is in the center of the Forest in the vicinity of Stevens (U.S. 2) and Snoqualmie (I-90) Passes and along the east side of the Forest. Much of the intermingled private land is managed for timber production by large corporate landowners. Almost all of it is within the roaded portion of the Forest and only a minor amount is within wilderness or other unroaded areas. This pattern is evident on the Forest map.

## LAND STATUS

Other agencies also manage land within the Forest. The Washington State Department of Natural Resources manages more than 30 square miles of land scattered throughout the northeast part of the Forest (primarily Sections 16 and 36). The Washington Department of Game manages about 10 square miles of land of the affected sections within the Forest boundaries, and the Washington State Parks Commission manages about one square mile of land--Lake Wenatchee State Park.

In addition, there are many existing withdrawals from mineral entry for power sites, reclamation administration, and recreation. The Bonneville Power Administration has several major energy transmission corridors on the Forest which are managed under Memorandums of Understanding. This need of other agencies (Federal, State, and local) to occupy and use National Forest land with travel and utility corridors requires considerable management attention and interagency coordination.

To improve resource management and reduce the costs of National Forest administration, the Forest continues to be engaged in several land exchanges with owners of intermingled lands.

Although many rights-of-way have been acquired through private land, there is a continuing program for the acquisition of trail and road rights-of-way in order to ensure public access to National Forest lands.

Occasionally it is in the public interest to purchase private lands. This was the case with the private lands within the Alpine Lakes Intended Wilderness and key recreation lands within the Lake Chelan and Lake Wenatchee recreation areas. In the last few years, especially on Lake Chelan, emphasis has shifted from purchase to acquiring recreation or scenic easements. An Icicle Creek composite is being developed. Acquisitions in these composites will continue under this Plan.

### a. Land Adjustments

The Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) targets for land purchase and exchange for the Forest are about 3,000 acres per year from 1985 through 1990. Under current national direction, little or no purchase can occur outside the Congressionally directed Alpine Lakes acquisitions. Land exchange activities will largely be limited to work under existing agreements with Burlington Northern Inc., the State of Washington Department of Natural Resources, and Longview Fibre Co. A long-term land ownership adjustment program involving these three major landowners could potentially involve about 120,000 acres of private land and a similar acreage of National Forest land. Other small parcels would be acquired by exchange or purchase on a need and opportunity basis.

In order to better accomplish resource management objectives and improve efficiency, the Forest has ongoing land exchange programs with the State of Washington Department of Natural Resources (DNR) and Burlington Northern Timberlands Inc. The agreement with the DNR identifies an eventual adjustment involving about 20,000 acres in each ownership. The program with Burlington Northern Timberland Inc. proposes the study of about 83,000 acres of Burlington Northern lands and about 53,000 acres of National Forest land for possible exchange. The Forest is also working on two exchanges totaling about 23,000 acres of private land and 17,000 acres of National Forest land, with Longview Fibre Company.

In "checkerboard" ownership areas, industrial forest management practices result in much faster harvest of old-growth timber on private land. This rate of cutting and the related roading substantially affect roading and harvest on the public lands because of the cumulative effects of these activities on soil, water quality, and wildlife. It also limits the opportunity to manage the public lands for unroaded uses.

The subdivision and development of private lands within and adjacent to the Forest is accelerating. Current examples are: (1) The Murray Pacific lands in Chelan County above Fish Lake and in the Chiwaukum, Hatchery and Icicle Creek areas; and (2) the Pack River Management Co. lands in

the bottom of the Icicle Creek drainage. Such changes impact public land management in several ways. These include fire protection, access, sanitation (water quality) and trespass. Private land development also increases the recreation use of the Forest in these areas and increases the demand for the use of National Forest lands for water systems, sanitation systems, utilities and access. There are also demands to preserve the natural environment in proximity to summer homes or year-round residences. This creates pressure to restrict management options on activities such as timber harvesting and road, trail and campground construction.

In order to allow maximum utilization and adequate protection of public resources, the ownership pattern requires either: (1) a large, long-term landline survey program; (2) large-scale land ownership adjustments to eliminate the mixed ownership; or (3) a combination of the two.

#### **b. Special Land Uses and Utility Corridors**

The Forest provides lands for a wide variety of special uses by private individuals and public agencies. Such uses are authorized by special use permits, mining laws, and withdrawal authority of other agencies. The most common are those covered by special use permits. Examples of permitted uses are recreation residences, pastures, power or telephone lines, fences, irrigation ditches, water transmission pipelines, roads, dams, emergency airstrips, electronic sites, ski areas, and resorts.

There are about 1,469 special uses on the Forest. Seven hundred thirty-nine of these occupying 2,486 acres, are for recreational purposes. Another 730 occupy about 20,752 acres of National Forest land, and are termed non-recreational special uses. These uses produced \$402,505 in fees in fiscal year 1988. The number of permits and acres under permit change as some permits terminate and new uses are added. However, the trend is for more and more uses as time goes on. The uses have the effect of limiting the options in these areas for other uses including public recreation, timber harvest, livestock grazing, and facility construction.

Special uses are periodically inspected to insure compliance with conditions of the permit and to evaluate the appropriateness of continuing such use. Most permittees are charged fees for the privilege to use National Forest lands.

Utility corridors are managed under Cooperative Agreements and Memorandums of Understanding. The Forest maintains about 200 of these documents to administer various uses. Currently, power transmission lines are the major use of utility corridors on the Forest with three major energy utility corridors crossing the Forest through Stevens, Snoqualmie and Stampede Passes. The rights-of-way for these lines are from 100 feet to 1,400 feet in width and they occupy about 1,420 acres of National Forest land. The Western Regional Corridor Study for the State of Washington has also identified one potential corridor. It would cross the crest of the Cascade Range in the area between Tacoma Pass and Pyramid Peak. The corridor would then run southeasterly toward the Hanford and Tri-Cities area. In the short term, additional power transmission needs can be met by increasing the capabilities of existing utility corridors.

A moderate to strong demand can be expected for all special uses in the future. This is based on the number of applications currently received for non-recreation special uses. The right-of-way acquisition, grants of right-of-way and road construction cost sharing are expected to continue at about the current level. As the road system develops over time, these programs should be phased out, except for cost sharing of road reconstruction and maintenance. The need for these activities will also be reduced to the extent that land exchanges with the major landowners within the Forest consolidate ownerships, eliminating the need for cost sharing, granting and acquiring right-of-way, and surveying and marking property boundaries.

#### **c. Hydroelectric Energy Development**

There are no major hydroelectric power projects within the Forest. There are several projects adjacent to the Forest on the Columbia River. One project, Chelan Falls, relies on water storage in Lake Chelan. Generation of electric power

results in a 17 foot annual fluctuation in the level of Lake Chelan, and affects National Forest land management adjacent to the shoreline.

There are two minor projects of long standing on the Forest. One is the Holden project on Copper Creek at Holden Village. The other is the Trinity project on Phelps Creek on the Lake Wenatchee Ranger District. Both of these projects have existed for more than 30 years and serve small, isolated camp/organization sites.

Over the last five years, the Forest has had an average of about 25 small hydroelectric proposals pending. Most of these never go beyond the preliminary permit and feasibility study stage. Many are "repeats" where one proponent surrenders a preliminary permit for a proposal and another party applies for a preliminary permit for the same site.

Three proposals have reached the stage of applying for licenses to construct and operate small hydroelectric projects. They are the Tieton, Clear Lake and Railroad Creek projects. The Tieton and Clear Lake proposals involve "retrofitting" existing irrigation storage dams to produce power. The Railroad Creek proposal would be a totally new project to provide power for the Holden Village organization site.

## 14. ROADS

### a. Current Management Program

Currently 33 percent of the total Forest and 53 percent of the non-wilderness acres are considered roaded. In the roaded areas, there are approximately 3.75 miles of road for each square mile of land. Within these sections, the roads actually occupy about 4 percent of the land area.

In 1988 there were an estimated 5,110 miles of Forest Service roads on the Forest. About 18 percent of this total are classified as arterial and collector roads. Forest arterials and collectors access large or popular land areas and usually connect with State and County roads to form an integrated network of primary and secondary travel routes. The system is 98 percent complete,

however, some is in need of reconstruction. About 82 percent of the total system are local roads. These facilities are usually intended to provide access for a specific resource utilization or protection activity, such as a timber sale, a recreation site, or a firebreak. These roads are normally shorter and serve smaller areas of land. Resource service rather than travel efficiency is emphasized in their location, design and operation. The analysis of the management situation indicates that the local road system is about 76 percent complete. Ground slopes influence the choice of logging systems and the logging system determines the local road location and density. Typical permanent road densities (miles/Section) necessary to harvest timber in unroaded areas on the Forest are 3.12 miles for gentle slopes, 2.64 miles for moderate slopes, and 1.10 miles for steep slopes. Approximately 0.4 mile of additional road construction or reconstruction per million board feet is necessary for subsequent entries.

### 1) Bridges

The analysis of the current management situation has identified approximately 35 bridges that will need replacement or reconstruction in the next 10-15 years. These are log bridges that are greater than 15 years old, treated timber bridges greater than 25 years old, steel or concrete bridges greater than 35 years old, bridges whose capacity is significantly (75 percent) less than current legal loads, or bridges where inspection reports indicate significant damage, corrosion, or decay.

### 2) Forest Road Management

Road management objectives for all existing roads have been identified and stored in the Transportation Information System (TIS). A system has been developed to identify the resource objectives and the appropriate standard and management of all proposed roads. The existing and proposed levels of service for the arterial and collector roads are found in Chapter IV.

## 15. FIRE

### a. Current Management Program

Fire has played an important developmental role in many of the ecosystems found on the Wenatchee National Forest. As our management of these ecosystems has intensified so has our desire to manage the frequency and amount of change caused by fire. We now separate the fire management program into two different facets. One is the suppression of wildfire, and the second is the application of prescribed fire.

#### 1) Wildfire Suppression

The wildfire protection facet of the Fire Management Program consists of four activities. They are; Presuppression, Prevention, Detection, and Suppression.

Presuppression activities include all the preparation necessary to initiate efficient fire suppression efforts. In recent years this has included the rapid expansion of Interagency Agreements in an attempt to utilize all local fire suppression resources efficiently. The Wenatchee National Forest maintains agreements with many Federal, State, and Local entities which facilitate the management of the fire program on an inter-agency basis.

The current management program allocates approximately two million dollars per year to ensure the readiness of equipment and personnel for fire suppression efforts. Included in this allocation is funding for the following fire suppression resources which are funded by the Forest Service Regional Office and "hosted" on the Wenatchee National Forest (Two Air Tankers, One Helicopter with Rappel crew, One Lead Plane, One Hotshot Crew, and One Regional Fire Cache). The training and development of the fire management personnel is also included in this funding as is the acquisition and maintenance of the fire suppression equipment.

#### Detection

Detection of wildfires most commonly occurs by the public. About 80% of all wildfire reports come from the general public. The remaining 20% of the fire reports come from a combination of Lookouts, Aerial Detection Systems, and employees of the agencies involved in fire suppression. Increased Interagency cooperation has improved the efficiency of our fire detection efforts in recent years. This has resulted in a reduced number of lookouts being staffed and less hours being flown by aircraft for observation purposes.

#### Prevention

The Forest has developed and maintained an aggressive fire prevention program to reduce the number of human caused wildfires. A variety of communication and public media systems are used to inform the public of fire prevention activities, current conditions, and fire prevention needs. Throughout the past ten years the emphasis of fire prevention has evolved from efforts to provide individual personal contacts to increased use of public communication systems. Organized and timely use of the media reaches more people in a structured format and is less costly than organizing to accomplish individual contacts.

In addition, the Forest participates with the Washington State Department of Natural Resources and several other agencies, in the Industrial Fire Prevention Program which regulates the industrial activities which can occur on National Forest Lands.

Even with the fire prevention efforts outlined in the preceding paragraphs the Wenatchee National Forest has a history which shows that this area is subject to frequent wildfires some of which become very large. The following two tables show the relationship of fire occurrence and the incidence of large fires on the forest. Table II-26 shows the annual lightning and human caused fire occurrence and acres burned from 1957 through 1985. Table II-27 shows the number and size of the large fires that have occurred from 1960 to 1985 and their acreage.

Suppression

The current direction for the management of wildfires was implemented on the Wenatchee National Forest in May of 1984. It directs the fire manager to implement a fire suppression strategy which is efficient and includes the following considerations; land values of the area, resource values in the area, public and private property, existing and predicted weather and burning conditions, fuel volume and condition, terrain factors, and the availability of suppression resources. It should be emphasized that all wildfires that occur on the Wenatchee National Forest have been managed utilizing a cost-effective suppression strategy and this will continue after the implementation of this plan.

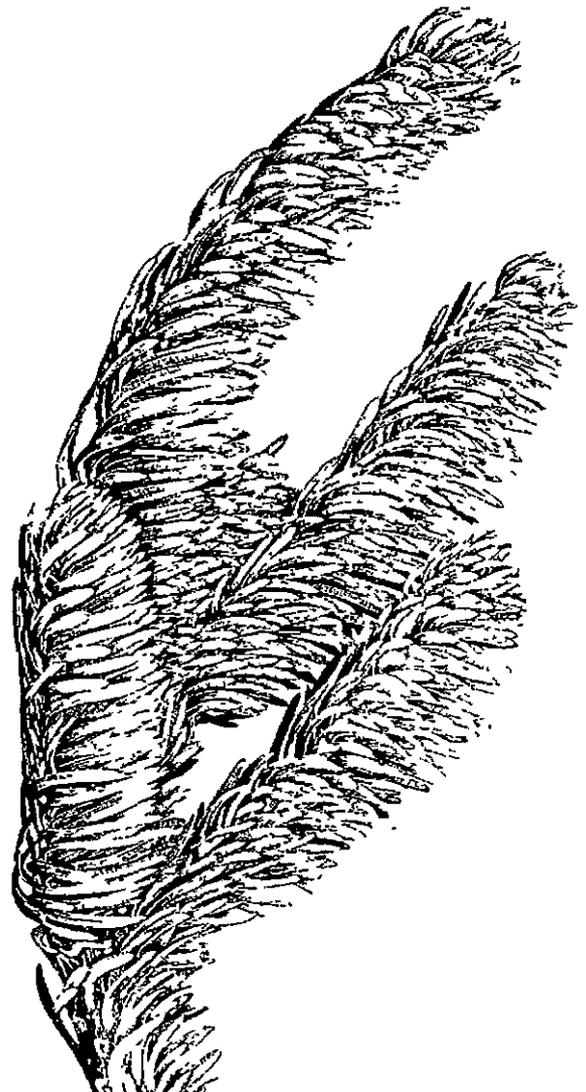
Fire suppression is accomplished utilizing a variety of equipment. Aircraft is utilized when effective. Tractors and other heavy equipment are used when the terrain and management practices allow. But, the primary suppression efforts are made by individuals utilizing handtools to construct fireline and mopup. The techniques for doing this job have not changed radically during the past 50 years.

2) Prescribed Fire

The second facet of the Fire Management Program is the use of prescribed fire. Prescribed fire may be used for a variety of land management objectives which range from site preparation for reforestation activities to browse improvement for wildlife habitat. Each prescribed fire has specific objectives and can only occur given predefined environmental conditions. If the objectives are not being obtained or the environmental conditions are not correct the fire is managed as a wildfire and suppressed.

With the implementation of the Alpine Lakes Wilderness Management Plan the use of natural ignitions (lightning) to initiate prescribed fires became possible. At this point the experience we have gained in managing natural prescribed fire within this wilderness is limited. With the implementation of this plan and after appropriate planning and documentation has occurred, the opportunity to expand the use of natural ignitions exists.

The prescribed fire program on the Wenatchee National Forest currently varies from approximately 4,000 to 8,000 acres per year. These acres are treated utilizing a variety of techniques ranging from broadcast burning to the burning of piled forest debris. The techniques being employed have evolved rapidly in the past ten years with the development of computer based models which have helped predict the amount of fuel consumed, the intensity of the fire, and the dispersion of the resultant smoke. These tools, combined with a well trained workforce have resulted in professional application of prescribed fire.



**TABLE II-26**

**ANNUAL FIRE OCCURRENCES BY ACRES AND CAUSE**  
**1957 - 1985**

<b>Year</b>	<b>Lightning Caused (Fires)</b>	<b>Human Caused (Fires)</b>	<b>TOTAL (Fires)</b>	<b>Lightning Caused (Acres)</b>	<b>Human Caused (Acres)</b>	<b>TOTAL (Acres)</b>
1957	21	60	81	Unknown		92
1958	111	51	162	Unknown		10,927
1959	7	50	57	Unknown		206
1960	13	111	124	---	1,084	1,084
1961	189	83	272	---	5,773	5,773
1962	63	74	137	388	294	682
1963	132	91	223	185	3,645	3,830
1964	13	67	80	2	2,280	2,280
1965	128	100	223	7	205	212
1966	37	102	139	1,520	124	1,644
1967	8	91	99	---	676	676
1968	18	69	87	10	28,484	28,494
1969	18	113	131	3	213	216
1970	176	255	431	130,407	1,017	131,424
1971	27	132	159	322	45	367
1972	23	90	113	1	59	60
1973	11	191	202	1	183	184
1974	8	175	183	1	845	846
1975	108	88	196	51	145	200
1976	10	145	155	6	10,762	10,768
1977	165	135	300	102	1,087	1,189
1979	59	128	187	83	2,133	2,216
1980	61	74	135	10	246	256
1981	117	56	173	36	7	43
1982	99	49	148	154	35	189
1983	30	61	91	5	7	12
1984	77	45	122	17	31	48
1985	14	58	72	91	1,512	1,603

**TABLE II-27**  
**WENATCHEE NATIONAL FOREST -- HISTORY OF LARGE FIRES (1960-1985)**

Date	Name of Fire	Ranger District	Cause	Fuel Type	Acres
07/18/60	No 2 Canyon	Leavenworth	Smoking	Grass/Brush	610
06/21/60	Birch Mtn.	Leavenworth	Debris	Grass/Brush	299
06/29/61	Tenas George	Entiat	Equipment	Grass/Brush	3,750
08/11/61	Eagle Creek	Leavenworth	Smoking	Brush/Pine	750
10/01/61	Nahahum	Leavenworth	Children	Grass/Brush	525
08/16/61	Swakane #2	Entiat	Lightning	Brush/Pine	125
07/31/61	Mud Creek	Entiat	Lightning	Pine	150
08/25/62	Skyline Dr.	Leavenworth	Smoking	Grass/Brush	178
07/27/62	Forest Mtn.	Entiat	Lightning	Pine	520
08/07/63	Cashmere RR	Leavenworth	Railroad	Grass/Brush	120
08/25/63	Bear Mtn	Chelan	Lightning	Brush/Pine	114
09/06/63	River Road	Leavenworth	Railroad	Pine	161
09/22/63	Monitor	Leavenworth	Lightning	Grass/Brush	118
10/21/63	Chelan Butte	Chelan	Powerline	Grass/Brush	3,097
08/08/64	Willow Tree	Chelan	Equipment	Grass/Brush	2,370
08/26/66	Hornet Creek	Entiat	Lightning	Mixed Conifer	1,520
07/06/68	Dry Gulch	Leavenworth	Equipment	Grass/Brush	2,000
08/04/68	4th of July Mtn.	Chelan	Unknown	Brush/Pine	27,120
08/05/68	Ardenvoir	Entiat	Burn. Bldg.	Brush/Pine	1,210
08/14/69	Chumstick	Leavenworth	Railroad	Brush/Pine	160
07/07/70	Mills Canyon	Entiat	Children	Brush/Pine	933
08/24/70	White Pine	Lake Wenatchee	Lightning	Timber	124
08/24/70	Hansel Creek	Leavenworth	Lightning	Timber	170
08/24/70	Falls Creek	Lake Wenatchee	Lightning	Timber	500
08/24/70	Shady Pass	Entiat	Lightning	Timber	1,950
08/24/70	Mid Slope	Lake Wenatchee	Lightning	Timber	120
08/24/70	Airport	Lake Wenatchee	Lightning	Timber	3,571
08/24/70	Cold Ridge	Entiat	Lightning	Timber	14,360
07/16/70	Safety Harbor	Chelan	Lightning	Timber	15,715
08/24/70	Mitchell Creek	Chelan	Lightning	Timber	42,280
08/24/70	Slide Ridge	Chelan	Lightning	Timber	7,100
08/23/70	Boulder Ridge	Leavenworth	Lightning	Timber	788
08/24/70	Cougar Mtn.	Entiat	Lightning	Timber	190
08/24/70	Entiat Zone	Entiat	Lightning	Timber	43,118
08/10/71	Goat Mtn	Chelan	Lightning	Timber	322
08/06/74	Eight Mile	Leavenworth	Equipment	Timber	500
08/30/74	Mineral Springs	Cle Elum	Equipment	Brush/Pine	143
08/02/75	Grade Creek	Chelan	Campfire	Grass/Brush	135
07/24/76	Crum Canyon	Entiat	Equipment	Brush/Pine	9,000
07/26/76	Ingalls Creek	Leavenworth	Campfire	Timber	650
07/14/77	Box Canyon	Chelan	Campfire	Brush/Pine	512
07/15/77	Bear Mtn.	Chelan	Burn Vehicle	Brush/Pine	110
07/31/79	Slide Ridge	Chelan	Fireworks	Brush/Pine	866
08/12/79	Spring Water	Leavenworth	Debris	Grass/Brush	340
10/08/79	Nahahum Canyon	Leavenworth	Debris	Brush/Pine	1,050
07/16/80	Silica	Chelan	Campfire	Brush/Pine	210
06/27/85	Cascade	Chelan	Misc.	Brush/Pine	450
07/04/85	Devils Ridge	Naches	Equipment	Slash/Timber	120
07/25/85	Fourth of July	Chelan	Misc	Brush/Pine	740
07/25/85	Lost Lake	Cle Elum	Equipment	Slash/Timber	750
07/28/85	Five-Mile	Leavenworth	Debris	Slash	500
09/03/85	Blewett Pass	Cle Elum	Lightning	Slash/Timber	90

## 16. SOCIAL/ECONOMIC

### a. Current Management Program

#### 1. Social

Communities within and adjacent to the Forest are concerned about a balance of natural and human related resource activities. Many of the residents of the communities in the area of the Forest derive their livelihood from forest related activities and many participate in a wide variety of forest recreational activities. These residents have a keen interest in the management of the Wenatchee National Forest.

The recreational activities and environmental amenities offered by the Forest are important components of life in the small rural recreational and residential communities located in and around the Forest. Examples include the Lake Wenatchee area, Leavenworth, and Chelan. Because the economic base of these communities depends on tourism, they are affected by changes in the pattern of recreational opportunities on the Forest. They are also affected by changes in environmental quality, and benefit from opportunities for free and easy access to forest resources and products. Firewood, fish, game, and water are among forest resources important to local communities. The preservation of these Forest qualities is of great importance to these communities.

Rural communities whose economic life is tied to logging, sawmills, and related transportation and construction are also affected by changes in the supply of timber from the Forest. The productive use of resources and products is an important value of forest management.

In addition to the residents of the three-county (Chelan, Kittitas, and Yakima) area, Forest management affects out-of-area recreationists who live in the metropolitan areas of Washington. These people typically have concern for recreational and visual quality, wilderness, road access, and hunting opportunities. Their ties to the Forest are principally through the recreational activities they engage in.

#### 2. Population

The three counties have an area of 9,503 square miles and a population of almost 250,000 people. Yakima County is the most densely populated (40 people per square mile) while Kittitas County has the least population density (11 people per square mile). Most people live in the larger towns and cities scattered along the east side of the mountains, especially Wenatchee, East Wenatchee, Ellensburg, and Yakima. About 90 percent of the people in the three counties live in the agricultural valleys. Residents in the eastside communities are affected by the Forest through availability of recreation, the payments to County governments from Forest receipts, production of market goods such as lumber and beef, (Table II-28), and other amenities such as enjoyment of the visual character of the Forest.

**TABLE II-28**  
**SOURCE OF COUNTY REVENUES - 1984**  
(In Dollars)

County	1984 Property Tax Revenue Levies	Wenatchee N.F.	25 Percent Funds Given to Counties Based on National Forest Receipts <sup>1/</sup>			Total National Forest Payments to Counties
			Mt. Baker <sup>2/</sup> Snoqualmie N.F.	Gifford Pinchot N.F.		
Chelan	17,390,291	1,337,183			1,337,183	
Kittitas	6,938,570	334,059	176,479		510,538	
Yakima	43,938,061		1,490,029	255,616	1,745,645	
<b>Totals</b>	<b>68,266,922</b>	<b>1,671,242</b>	<b>1,666,508</b>	<b>255,616</b>	<b>3,593,366</b>	

<sup>1/</sup> 25 percent funds are based on proclaimed National Forest boundaries. This is for Fiscal Year 1984 (October 1983-September 1984)

<sup>2/</sup> Administered by the Wenatchee National Forest, but the 25 percent funds are based on Mt. Baker-Snoqualmie National Forest receipts.

Sources. Chelan, Kittitas, and Yakima County Assessor's Offices, Personal Communication April 15, 1985.  
U S. Department of Agriculture, Forest Service, Wenatchee National Forest, 1984 File Data.

### 3. Employment

Major employment comes from city, county, State and Federal agencies, trade and service, lumber and wood products manufacturing, and agriculture, especially apples, soft fruits, cattle, hops, potatoes and wheat.

Table II-29 depicts some of the major employment categories considered in Washington State and the three-County area with the numbers of employees in each.

**TABLE II-29**  
**EMPLOYMENT**  
**BY STATE AND SELECTED COUNTIES**  
**(NUMBER OF PERSONS)**  
**MARCH, 1984**

	Washington	Chelan and Douglas County	Kittitas County	Yakima County
Total Employment	1,575,314	20,649	7,216	56,007
Agriculture, Forestry and Fishing	34,865	2,241	---	8,017
Mining	2,426	43	---	52
Construction	69,606	740	128	1,764
Manufacturing	277,895	2,552	531	6,708
Lumber and Wood Products	40,585	325	82	1,145
Food and Kindred Products	28,224	644	284	2,530
Transportation and Public Utilities	80,363	562	288	387
Wholesale Trade	97,192	2,194	370	4,982
Retail Trade	286,083	3,636	1,629	9,856
Finance, Insurance, Real Estate	90,878	945	200	1,741
Services	317,938	4,276	1,167	11,226
Nonclassifiable Establishments		98	0	169
Federal Government	66,972	438	114	983
State Government	83,801	841	1,406	1,946
Local Government	167,197	2,181	1,214	6,404

Source: Washington Employment Security Department. 1985. Employment and Payrolls in Washington State by County and Industry First Quarter 1984, No. 150.

Unemployment in the three Counties has consistently been greater than the State average (Table II-30).

**TABLE II-30**  
**UNEMPLOYMENT RATES 1970, 1975,**  
**1979, 1981, 1983, 1984**  
**(In Percent)**

Year	Washington	Chelan-Douglas Counties	Kittitas County	Yakima County
1970	9.1	10.9	9.5	10.7
1975	9.6	10.8	10.5	10.4
1979	6.8	10.5	9.0	9.7
*1981	9.5	12.8	12.7	12.0
*1983	11.2	14.5	13.1	14.9
*1984	9.5	12.3	13.0	14.4

Source: Washington Employment Security Department, Research and Statistics Section. 1980 Personal Communication.

\* Washington Employment Security Department, Wenatchee, Personal Communication 1981, 1983, 1984

**4. Human and Community Resources**

The Forest is part of a nation-wide program of human and community development, which has as its primary goal helping people and communities to help themselves. The program includes activities that provide work and learning experiences for youth, adult employment, training opportunities, and technical assistance to individuals and communities.

The Forest has been actively engaged in a wide variety of manpower and youth training programs. The Youth Conservation Corps (YCC) Program provides employees between the ages of 15 and 18 with employment and experience in a natural resources environment. The Senior Community Service Employment Program (SCSEP) provides part-time employment for senior citizens whose incomes are within poverty levels. Other programs the Forest has been active in include: The Comprehensive Employment Training Act (CETA), College Work Study, and the Young Adult Conservation Corps (YACC) Programs.

The Volunteers in the National Forest Program has become increasingly important as funding levels decrease for some of the above programs. This program, authorized in 1972, has been used extensively to accomplish necessary resource activities such as campground host work, trail construction, wilderness patrol, and many other jobs. Many volunteers are highly qualified individuals who are retired or young people unable to find jobs in their profession, trade, or area of interest because of current economic conditions and the lack of employment opportunities. Volunteer programs are expected to increase.

The Forest has the ability to utilize Human Resource Programs to accomplish many Forest projects. For example, there is a continuing need to improve buildings, campgrounds, and trails, to improve young timber stands through thinning and pruning; and to accomplish soil and water improvement programs. Although there is a backlog of projects that can be accomplished, the funding for these programs varies from year to year because of National budget priorities. Because of this, these programs are not always available when needed.

In 1984, the Forest had the following enrollment in these programs:

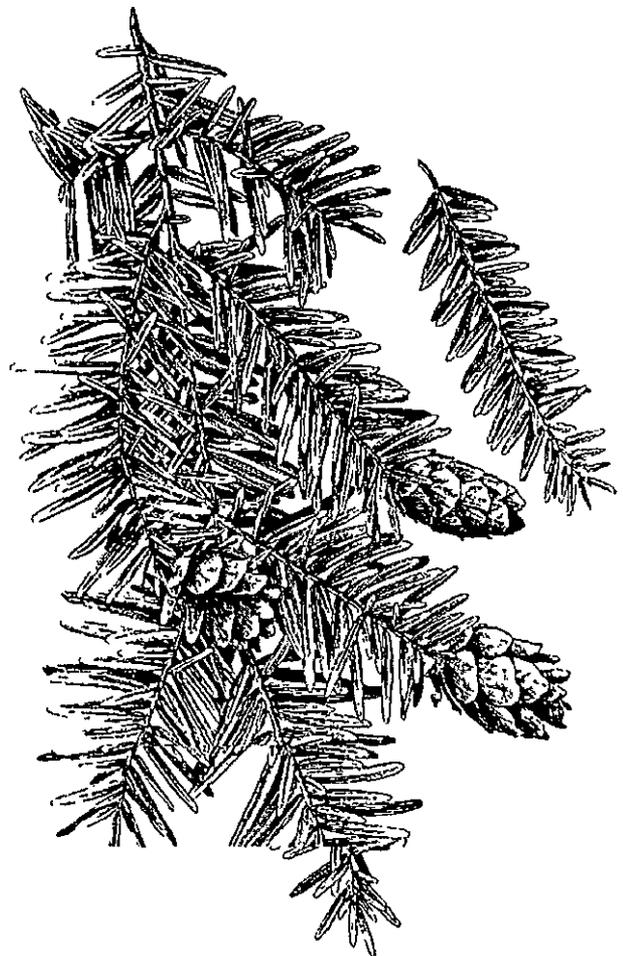
	Person Years
YCC	2.11
Campground Hosts	1.85
Volunteers	20.72
SCSEP	10.32
<b>TOTAL</b>	<b>35.00</b>

The outlook is for these programs to continue at about this same level.

Various programs have been implemented for minorities and women to benefit both the Forest and the individuals. This effort is reflected in Forest Service hiring, supervisory, and contracting procedures.

### **5. American Indian Treaty Rights**

Certain rights and privileges are afforded members of the Yakima Indian Nation and the Wenatchi Indian members of the Colville Confederated Tribes under the Treaty of 1855. The treaties provide that on the ceded lands, the Indians will continue to have the rights such as the taking of fish in streams running through and bordering the Reservations and at all other usual and accustomed stations in common with the citizens of the United States; and the privilege of hunting, gathering roots and berries, and pasturing stock on unclaimed lands. These rights will be considered through management of appropriate resources such as fish, wildlife and riparian areas. The entire Wenatchee National Forest is within the area ceded by the Yakima Indian Treaty.



**TABLE II-31**

**CURRENT OUTPUTS, AND SUPPLY POTENTIAL**  
**BY RESOURCE OR ACTIVITIES**

	UNITS	YEAR				
		Decade 1	Decade 2	Decade 3	Decade 4	Decade 5
<b>DEVELOPED RECREATION</b>						
<b>USE CAPACITY</b>	Thousand RVD's					
Current Program		4,883	4,900	4,900	4,900	4,900
Production Potential		6,853	6,870	6,870	6,870	6,870
Forest Plan		6,683	6,700	6,700	6,700	6,700
Demand		3,141	3,449	3,848	4,647	4,647
<b>DISPERSED RECREATION</b>						
<b>USE CAPACITY</b>						
-Roaded	Thousand RVD's					
Current Program		22,576	23,576	23,829	24,082	24,334
Production Potential		<-----		26,007		----->
Forest Plan		21,884	22,467	22,873	23,279	23,685
Demand		1,998	2,126	2,294	2,462	2,630
-Unroaded, Motorized	Thousand RVD's					
Current Program		873	833	803	773	742
Production Potential		<-----		1,024		----->
Forest Plan		796	752	722	692	663
Demand		279	301	336	371	405
-Unroaded Non-Motorized	Thousand RVD's					
Current Program		147	142	135	128	121
Production Potential		<-----		341		----->
Forest Plan		188	179	174	169	163
Demand		99	106	118	130	143
-Wild and Scenic Rivers	Miles					
Current Program		<-----		45		----->
Production Potential		<-----		230		----->
Forest Plan		<-----		240.5		----->
Demand		<-----		Mixed		----->
<b>VISUAL QUALITY OBJECTIVES</b>						
-Preservation	Acres					
Current Program		<-----		842,751		----->
Potential		<-----		843,281		----->
Forest Plan		<-----		843,281		----->
Demand		<-----		Very High		----->
-Retention	Acres					
Current Program		<-----		485,081		----->
Potential		<-----		828,058		----->
Forest Plan		<-----		521,800		----->
Demand		<-----		Very High		----->

**TABLE II-31 (continued)**

**CURRENT OUTPUTS, AND SUPPLY POTENTIAL  
BY RESOURCE OR ACTIVITIES**

	UNITS	YEAR				
		Decade 1	Decade 2	Decade 3	Decade 4	Decade 5
-Partial Retention	Acres					
Current Program		<-----		459,112		----->
Potential		<-----		246,835		----->
Forest Plan		<-----		332,927		----->
Demand		<-----		High		----->
-Modification	Acres					
Current Program		<-----		55,629		----->
Potential		<-----		55,629		----->
Forest Plan		<-----		147,828		----->
Demand		<-----		Low		----->
-Maximum Modification	Acres					
Current Program		<-----		321,607		----->
Potential		<-----		86,941		----->
Forest Plan		<-----		318,344		----->
Demand		<-----		Very Low		----->
<b>WILDERNESS USE CAPACITY</b>	Thousand RVD's					
Current Program		<-----		1,060,000		----->
Production Potential		<-----		1,060,000		----->
Forest Plan		<-----		1,060,000		----->
Demand		423.5	444.7	475.8	507.2	540.2
<b>WILDLIFE HABITAT</b>						
-Big-Game	Acres					
Current Program		<-----		17,151		----->
Production Potential		<-----		148,189		----->
Forest Plan		<-----		118,742		----->
Demand		<-----		148,189		----->
-Old-Growth	Acres					
Current Program		307,300	295,800	284,400	272,900	261,600
Production Potential		<-----		310,600		----->
Forest Plan		307,300	295,700	284,200	272,700	261,200
Demand		<-----		Very High		----->
<b>BIG GAME ESTIMATES</b>						
-Deer (summer)	Numbers					
Current Program		25,200	25,100	25,000	24,900	24,700
Production Potential		<-----		28,100		----->
Forest Plan		25,100	24,900	24,800	24,600	24,400
Demand		<-----		High		----->

**TABLE II-31 (continued)**

**CURRENT OUTPUTS, AND SUPPLY POTENTIAL  
BY RESOURCE OR ACTIVITIES**

		UNITS		YEAR		
		Decade 1	Decade 2	Decade 3	Decade 4	Decade 5
-Elk (summer)	Numbers					
	Current Program	12,500	12,500	12,400	12,400	12,300
	Production Potential	<-----14,000----->				
	Forest Plan	12,500	12,400	12,300	12,200	12,100
	Demand	<-----High----->				
<b>FISHERIES</b>						
-Cutthroat Trout	Numbers					
	Current Program	201,000	202,000	203,000	204,000	205,000
	Production Potential	206,000	218,000	230,000	242,000	254,000
	Forest Plan	204,000	212,000	220,000	229,000	238,000
	Demand	<-----Very High----->				
-Anadromous Commerical Harvest	Lbs (with increasing escapements)					
	Current Program	328,000	941,000	946,000	950,000	955,000
	Production Potential	328,000	1,002,000	1,028,000	1,054,000	1,080,000
	Forest Plan	328,000	970,000	1,012,000	1,012,000	1,033,000
	Demand	<-----Exceeds Supply----->				
<b>VEGETATION: TREES</b>						
-Timber Offered	Thousand Cubic Feet					
	Current Program	<-----32,400----->				
	Production Potential	<-----36,500----->				
	Forest Plan	<-----26,100----->				
	Demand	30,940	<-----Exceeds Supply----->			
-Timber Offered	Thousand Board Feet					
	Current Program	<-----176,800----->				
	Production Potential	<-----186,600----->				
	Forest Plan	<-----146,000----->				
	Demand	168,600	<-----Exceeds Supply----->			
-Allowable Timber Sale Quantity--	Thousand Cubic Feet					
	Current Program	<-----31,300----->				
	Production Potential	<-----34,100----->				
	Forest Plan	<-----24,300----->				
	Demand	30,940	<-----Exceeds Supply----->			
-Allowable Timber Sale Quantity--	Thousand Board Feet					
	Current Program	<-----170,800----->				
	Production Potential	<-----173,800----->				
	Forest Plan	<-----136,800----->				
	Demand	168,600	<-----Exceeds Supply----->			

**TABLE II-31 (continued)**

**CURRENT OUTPUTS, AND SUPPLY POTENTIAL**  
**BY RESOURCE OR ACTIVITIES**

	UNITS	YEAR				
		Decade 1	Decade 2	Decade 3	Decade 4	Decade 5
<b>-Fuelwood Availability</b>						
	Thousand Cubic Feet					
Current Program		<-----	4,396	----->		
Production Potential		<-----	4,396	----->		
Forest Plan		<-----	3,400	----->		
Demand		<-----	Not Estimated	----->		
<b>VEGETATION: FORAGE</b>						
<b>-Grazing Capacity (Livestock)</b>						
	AUM's					
Current Program		36,400	37,700	37,600	37,800	38,300
Production Potential		<-----	42,900	----->		
Forest Plan		38,700	39,900	40,000	40,400	41,100
Demand		23,000	25,500	29,000	32,000	36,000
<b>-Expected Permitted Use</b>						
	AUM's					
Current Program		23,000	23,000	22,000	21,000	20,000
Production Potential		<-----	42,900	----->		
Forest Plan		23,000	24,000	24,000	24,000	24,000
Demand		23,000	25,500	29,000	32,000	36,000
<b>WATER YIELD INCREASE</b>						
	Acre Feet					
Current Program		13,800	18,900	19,500	19,200	21,600
Production Potential		<-----	40,600	----->		
Forest Plan		15,500	21,000	21,500	22,700	23,800
Demand		<-----	Very High	----->		
<b>ACTIVITY SEDIMENT YIELD</b>						
	Tons					
Current Program		94,900	69,200	69,200	38,800	38,800
Maximum Program		96,600	96,600	96,600	54,100	54,100
Forest Plan		72,400	72,400	72,400	40,500	40,500
<b>MINERALS</b>						
<b>-Locatable Minerals</b>						
Current Program	Plans of Operation	100-170	130-200	130-200	130-200	130-200
	Notices of Intent					
Potential Program	Acres Available for Mineral Development					
	High Potential	<-----	14,204	----->		
	Moderate Potential	<-----	46,538	----->		
	Low or Unknown	<-----	1,253,377	----->		
<b>-Leaseable Minerals</b>						
Current Program	Leases/Permits Plans of Operation	35	35	40	50	60
Potential Program	Acres Available					
	Oil and Gas	<-----	205,854	----->		
	Coal	<-----	425,657	----->		
	Geothermal	<-----	182,385	----->		

**TABLE II-31 (continued)**

**CURRENT OUTPUTS, AND SUPPLY POTENTIAL  
BY RESOURCE OR ACTIVITIES**

		UNITS	YEAR				
			Decade 1	Decade 2	Decade 3	Decade 4	Decade 5
-Salable Minerals	Tons						
Current Program		90,000	90,000	80,000	70,000	60,000	
Potential Program		142,000	129,000	100,000	80,000	60,000	
<b>ROADS</b>							
-Arterial and Collector	Miles						
Construction & Reconstruction							
Current Program		17	2	2	2	2	
Maximum Program		19	2	2	2	2	
Forest Plan		18	2	2	2	2	
-Timber Purchase Roads	Miles						
Construction & Reconstruction							
Current Program		74	74	4	4	4	
Maximum Program		111	92	8	8	8	
Forest Plan		83	68	5	5	5	
<b>FUEL TREATMENT</b>	Acres						
Current Program		3,400	4,800	4,800	4,800	4,800	
Maximum Program		11,300	11,500	6,200	7,000	6,600	
Forest Plan		6,700	5,800	3,200	6,800	7,800	
<b>TOTAL BUDGET</b>	Thousand Dollars						
Current Program		23,000	22,000	21,500	20,900	20,600	
Maximum Program		34,200	31,800	30,000	29,000	27,500	
Forest Plan		29,000	25,400	24,000	23,500	22,800	
<b>RETURNS TO TREASURY</b>	Thousand Dollars						
Current Program		12,500	13,700	13,100	16,000	14,500	
Maximum Program		15,300	16,300	15,900	24,200	25,700	
Forest Plan		14,000	15,100	10,400	17,500	14,300	
<b>PAYMENTS TO COUNTIES</b>	Thousand Dollars						
Current Program		3,000	3,000	2,600	2,900	2,400	
Maximum Program		3,700	3,300	3,200	4,400	4,200	
Forest Plan		3,300	3,300	2,100	3,200	2,400	
<b>CHANGES IN JOBS</b>	Number						
Current Program		39	-	-	-	-	
Maximum Program		629	-	-	-	-	
Forest Plan		203	-	-	-	-	

## C. INFORMATION NEEDS

This subsection addresses the information, inventory, or research needs that have been identified by the Forest Supervisor in the EIS.

The Information Needed by Resource or Use include:

### Recreation

1. Geographic Information System layers for roads and trails to aid in further refinement of Recreation Opportunity Spectrum (ROS) mapping and capacity coefficient accuracy. Data is needed by the first plan revision.
2. Follow-up on research done on Dispersed Recreation activity preferences in the Taneum-Manashtash area. This is needed by plan revision to aid in discussing any changes in demand for different dispersed recreation activities.
3. A uniform method for determining and applying demand for various forms of recreation. This will be tied to the ROS system. This is needed for the next round of planning to aid in improving estimated recreation demand.
4. Forest and site/area specific information is needed to have more localized data concerning Off Road Vehicle impacts on wildlife and their habitats.
5. Further research is needed to develop guidelines for use in determining an appropriate mix of Outfitted versus Non-outfitted visitors to wilderness and in establishing party sizes compatible with various wilderness ecosystems. This will be tied to the Wilderness Recreation Opportunity Spectrum system. This information should be developed during the plan implementation period.
6. An inventory of campsites in wilderness is needed to aid in planning and monitoring the impacts of recreation use.

### Cultural Resources

1. Completion of the cultural resource overview of the Forests historic resources. Overview should be completed by 1990.
2. Completion of the cultural resource inventory, including data pertaining to site content, condition, location, and range of types existing on the Forest. Inventory of all manipulated acres is needed by the first plan revision. Remaining Forest acres should be completed by the fifth decade.
3. Refine the cultural resource field sampling survey strategy through comparison of known site distributions to the predictive model developed for the Forest (areas of High, Moderate, and Low probability for the occurrence of cultural resources). Revision should be completed by 1990, and every five years thereafter.
4. Establish the major cultural themes that are represented on the Forest, and identify the range of cultural properties that is associated with each. This will form the foundation for decisions concerning their significance and treatment. Should be completed by the first plan revision.
5. Identify the specific areas of archaeological research needed to close current information gaps, and to aid in evaluation and management. Identify the classes of prehistoric sites that exist, the known or estimated frequency of occurrence, and their relationship to the full range of Forest environments. Should be completed by first plan revision.
6. Determine those sites for which American Indian religious concerns may exist in addition to the standard National Register considerations. This may take precedence over any research values inherent in the property, and may prompt a different type of management prescription than would otherwise apply. To the extent the relevant American Indian groups are willing to share this information, it should be completed by the first plan revision.

## INFORMATION NEEDS

7. Tie in the Forest cultural resource data base with the State-wide historic preservation plan and determine the specific relationship of the Forest properties to the regional research design. This will affect decisions regarding significance and long-term management of cultural resources. Should be completed by the first plan revision.

### Wildlife

The Forest Service manages habitat but is also concerned that habitat is occupied even though the Washington Department of Wildlife is responsible for the animals.

The information available on indicator, threatened, endangered and sensitive species needs to be upgraded to provide management with reliable information and assessment.

The upgrade of information is planned to be accomplished by:

1. Development of Species Management Guides. Species Management Guides will gather known information, identify inventories needed, research needs, models and costs for doing each. Each indicator, threatened, endangered or sensitive species will have one or more Species Management Guides developed in the next 10 years.

The "Forest Plan Monitoring Worksheets" identify the general areas of information needs in the "Remarks" section.

### Fisheries

Many general interactions of fish and other resources are known from research that has been conducted around the world. Much of the research on cold water species, both anadromous and resident, is probably valid on the Wenatchee National Forest. However, complete inventories of the Forest have never been done so the research is difficult to apply. Many of the numbers and projections in this Forest Plan are therefore best estimated with only limited inventories. Furthermore, some basic questions about the Forest, cannot be answered reliably. For instance, some of the answers to the following questions are not known:

1. Are Forest-wide riparian standards valid? Will they provide conditions necessary to maintain or improve fish habitat and are the standards valid for streams on the Wenatchee National Forest?

2. Where are the fish-bearing streams located?

3. What habitat factors are limiting fish production?

4. What are the effects of clearcutting large percentages of drainages on fish? Especially, cumulative effects in intermingled ownerships?

5. How much are management activities contributing to the degradation of aquatic habitat, if at all, and how can we better predict the effects of management activities on fish habitat?

6. What is the smolt habitat capability for anadromous fish on Forest Service managed streams?

7. What is the potential to produce resident fish?

8. What lakes have fish, what species, and how many?

9. Where are the opportunities for habitat improvement?

10. How many culverts on fish streams are not adequate for fish passage and what are the effects?

11. What is the status, distribution and habitat preference for bull trout? What is limiting production?

The answers to these questions are needed to adequately monitor the effects of Forest Plan implementation and for the first plan revision. Methodology will have to be developed to address the 10 questions. Much of the information necessary will become available upon implementation of the stream inventory program, and the monitoring plan.

### Threatened, Endangered and Sensitive Species

Threatened, Endangered and Sensitive (T, E and S) plants and animals by their nature are uncommon and often inhabit unique or unusual habitats. Consequently, it is not unusual that little is known about Threatened, Endangered or Sensitive species and it is difficult to apply knowledge from other closely related species.

#### Plants and Animals

Inventories of T, E and S species and their habitat are necessary to provide adequate management guidelines and evaluations. Actual population locations or potential habitat should be mapped on high quality maps of at least 1:24000 scale. Although sightings are currently sent to the Washington Natural Heritage Program or Washington Department of Wildlife and project areas are being inventoried, there currently is no systematic process for mapping all populations and appropriate habitat. A plan is required to complete this mapping. As a geographic information system looms as a valuable management tool in the near future, these maps would serve as a data source to develop an important data layer.

Many unanswered questions about T, E and S species will require research to answer. These questions concern (among other things): habitat requirements; population biology; genetic variability; reproductive biology; effects of fire; population trends; extent of range; effects of natural succession; and effects of management practices. It is important to know more about these things so that the future needs of T, E and S species can be predicted and planned for.

Species Management Guides or Recovery Plans are required for all T, E and S species and will be used to direct management activities thereby reducing the possibility that a species of concern is negatively impacted.

#### Plants

Once a vegetation classification has been completed for the Wenatchee there is a need to determine the plant associations that represent typical habitat for the T, E and S species. Once

done this will allow a much more accurate prediction of the kind of habitat required by any given rare plant or animal and be an aid in project planning and execution.

It is impossible to inventory all National Forest Lands in sufficient detail to locate all populations of rare plants. Consequently, there is a need to train all types of field personnel to be able to identify T, E and S species. In this way the days spent on the ground by all types of people as they do their normal jobs can also serve to help locate rare plants.

### Vegetation: Research Natural Areas

There is a constant need for suitable areas to fill needed cells in the Research Natural Area (RNA) system. This is especially true of low elevation forest and forest-margin sites. Completion of a plant association classification of the Forest is a real need and will help to delineate the types of potential natural plant communities present. As cell needs are updated using this soon to be completed plant association guide there will likely be a number of additional RNA's proposed for the Wenatchee. The Research Natural Area "Yellow Book" should also be updated to reflect the new information provided by the completion of a number of plant association classifications in the Pacific Northwest.

Location of potential sites for Research Natural Areas should be encouraged. The Forest will consult with the regional RNA scientist on potential sites and receive proposals for suitable areas from the RNA committee. After proposal, an establishment record is required as part of the establishment process for an RNA. This record includes a description of the proposed area, its features, the objective for management and the management direction. A survey of the area will be necessary to gather the information required to complete this report.

**Biological diversity**

The issue of ecosystem or biological diversity is a complex one that touches many attributes of forest planning. Biological diversity is difficult to quantify, especially on a National Forest of over 2 million acres.

Some of the topics related to diversity that require additional information include: old growth, sensitive species, and forest fragmentation; among others. Consequently, more information is needed on how to define and measure diversity, including a model to provide quantitative diversity index. How much diversity is "normal". How much old growth is required to maintain diversity and meet the needs of a concerned public. What definition(s) of old growth will be used; then, how much old growth is there and where is it? How much fragmentation is normal and how does artificially caused fragmentation relate to natural conditions. Where are the sensitive plant species on the Forest and what is the status of their populations? All of the above questions will require inventory and/or research to answer.

**Vegetation: Trees**

More specific data is needed on the expected results from management activities on the various vegetative types. The area ecologist is expected to complete an area guide covering the Forest types in 1989. Of particular concern is the productivity of upper elevation conifer stands and potential results of intensive management.

A second major concern is the accuracy of yield predictions for areas managed with emphasis on other resources including scenery, old-growth and mature dependent species, big game, and riparian protection.

**Vegetation: Forage**

Forage production information is needed for transitory forage types, both inside and outside of existing allotments. More Forest specific information is needed on production by decades following silvicultural activities or fire, to better predict production potential through the planning horizon.

A more definitive method is needed to calculate Forest-wide forage production. A method using satellite imagery (Land Sat) keyed to Forest specific production is recommended.

**Water**

The information needs for the water resource are closely tied to those described in the sections for fish habitat and soils. A primary need exists to develop a stream inventory data base in conjunction with fisheries. A revision of the Forest's Watershed Improvement Needs Inventory is needed to improve the focus of this capital investment program.

A need exists to develop/validate models used to analyze the cumulative effects of timber harvest and road construction on water quantity, quality and stream channel stability.

Research is needed on rain-on-snow events for the east slope of the Cascades. The results of similar studies conducted in Western Oregon may not fit the conditions that are found on this Forest.

Research is needed to develop a better understanding of sediment routing (transport and storage) over a range of stream types in differing geology. This information is needed to improve our abilities to predict the amount and effect of fine sediment deposition on fish habitat.

A need exists to develop improved inventory and monitoring techniques used for water and related resources. New methods will be needed to facilitate the shift from traditional water quality sampling toward evaluation of stream channel and watershed condition.

**Soil**

The Forest has identified the following as new or continuing research needs for the soil resource.

1. Natural erosion/sedimentation rates from forested landtypes over a variety of parent materials, soil textural classes, and slopes.
2. Erosion and sedimentation rates from road construction, timber harvest, mining, fire, and grazing over a range of landtypes.

3. Short and long term effectiveness of erosion control measures applied to a variety of practices and soil types.

4. Continued research into logging, machine piling, and fire effects on long term soil productivity (especially in regards to site prep., compaction, nutrient loss, etc.).

5. Effects of soil compaction on soil erosion and site productivity over a variety of slopes and soil types.

6. Cumulative effects studies to develop and/or evaluate existing models with the objective being to come up with a predictive model that really reflects cumulative effects and can be validated.

7. Studies that will determine long term soil productivity and show trends over time for at least the major soil types on the Forest.

### Mineral Resources

The mineral resource data may need to be updated according to newly implemented standards for mineral input to land management planning (draft *Procedural Guide for Integration of Energy and Mineral Resources in Forest LMP Process*, dated December, 1985). Accomplishment of the following will assist in meeting the objectives:

1. All active mineral operations should be inventoried and identified (including name of site, location, commodity, annual production in appropriate units).

2. Identify information inadequacies (eg., commodity and annual production).

3. Rate management areas according to their activity favorability. This should be by locatable, leasable, and salable mineral resources.

4. Rate the management areas according to their probability for occurrence of mineral resources.

5. Inventory outstanding and reserved mineral rights.

6. Inventory existing withdrawals.

7. Inventory acquired lands.

8. Solicit industry input, and rate management areas according to industry interest.

9. Re-analyze supply/demand forecast situation.

10. To the extent practical, determine probability of activities, their location, the level of exploration and development under the management situation, and the economic conditions necessary to trigger the activity.

11. Develop mineral cost and benefit information.

### Roads

There is a need to know more about the effects of road construction and operation on the physical environment: soil, air, water.

There is a need to know more about the effects of road construction and operation on recreation use and patterns of use.

There is a need to know more about the effects of road construction and operation on fish and wildlife.

### Fire Management

1. More information is needed on the effects of prescribed burning on timber yields.

2. More information is needed on the effects of prescribed fire on soil erosion, soil productivity and water yields on the Entiat, Wenatchee, Chiwawa, Icicle, Yakima, Naches, and Tieton River drainages.

3. There is a need to develop best predictive methods for smoke dispersal - Eastside Cascades.

## CHAPTER III

# RESPONSE TO ISSUES, CONCERNS AND OPPORTUNITIES

### A. INTRODUCTION

A major step in the development of this plan was the identification of issues and concerns related to management of the Wenatchee National Forest. These issues and concerns were identified through citizen participation including public meetings, interagency coordination, personal contacts with individuals and groups, and the comments to the DEIS and proposed Forest Plan. In this chapter, these issues are summarized and a brief description of their disposition in this plan is provided. The reader is encouraged to read Appendices A and K of the Environmental Impact Statement (EIS) for a more detailed description of the issues and concerns, and for how comments to the DEIS were handled. Chapter I of the EIS describes how the issues evolved since the release of the DEIS. The issues and concerns are listed as follows:

**Recreation Opportunities and Use Conflicts**  
**Management of Areas That Are Presently Undeveloped**  
**Wild, Scenic, and Recreational Rivers**  
**Water Quality and Quantity**  
**Wildlife and Fish Habitats**  
**Old Growth Forests**  
**Management of the Scenic Resources**  
**Timber Production**  
**Range Management**  
**Management of Cultural Resources**  
**Cumulative Effects of Management Activities**  
**Social Economics**

### B. RESPONSE

#### 1. RECREATION OPPORTUNITIES AND USE CONFLICTS

##### **Discussion of the issue**

The Forest receives about 5 million visitor days of use a year. It is one of the most heavily visited National Forests in the United States. Use is continuing to increase, and conflicts between recreational user groups (off-road vehicles, hikers, horses, snowmobilers, cross-country skiers, etc.) are becoming more evident. For instance, there are issues about noise pollution from off-road vehicles in narrow canyons, such as Devil's Gulch, and in areas like the Teanaway, and Lake Clara. In addition, some recreation activities can cause resource damage because of the level, type, or location of use. There is also a demand to separate different types of recreation use by areas, and to separate uses within some areas such as hikers and off-road vehicles. Regulation of commercial use is included in the issue.

Recreational use at certain times of the year in such key wildlife habitat areas as Swakane Canyon and Oak Creek may disrupt wildlife. Timber harvest access roads can increase roaded dispersed recreation opportunities but reduce primitive and semi-primitive recreational opportunities. The potential effect of road development on trails is an issue.

There are opportunities to reduce user conflicts by separating uses through land allocations. Scenic areas, unroaded dispersed recreation areas, areas for motorized or non-motorized use, and classified Wild, Scenic or Recreational rivers are all potential allocations that would separate use. It is also possible to eliminate or reduce damage or conflicts through information programs and by applying seasonal or year-long restrictions on uses of trails or areas.

The Forest has an opportunity to develop or expand recreation sites, and ski areas, such as Mission Ridge and White Pass. There is an opportunity to use project design to encourage maintenance of recreational trails when timber is harvested.

### **Response to the issue**

There are 6,021 acres allocated to developed recreation sites including; campgrounds, picnic areas, ski areas, resorts, recreation resident tracts, boat docks, observation sites and trailheads. The plan provides for expansion of this capacity when demand exceeds the existing supply. Some 13,717 acres along the Mather Memorial Parkway are allocated to developed and roaded recreation use without management activities such as scheduled timber harvests.

Approximately 933,700 acres of dispersed recreation opportunity in a roaded setting will be provided. The setting for a part of this recreation opportunity is modified through timber harvest and other management activities which have emphasis in a portion of the roaded allocations. Some roads not needed for management activities will be closed which will help diversify recreational opportunities. Within the roaded setting important travel routes have reduced timber harvests levels in order to retain scenic values on 83,635 acres allocated to retention visual quality and 174,880 acres allocated to partial retention visual quality.

There are 96,355 acres allocated for unroaded, motorized use, while 116,092 acres outside of wilderness (841,034 in wilderness) are allocated to unroaded, nonmotorized use. In addition there are 70,512 acres in classified special interest areas which permits motorized use to the extent it is

compatible with the management intent. There will be some trails, either existing or to be constructed, within the unroaded, motorized allocations which will be managed for nonmotorized use.

The total miles of trails will not be decreased as a result of management activities. Trails that are affected by roads will be reconstructed.

A preliminary administrative recommendation will be made on 230 miles of rivers and streams contained in some 73,600 acres to be considered by Congress for inclusion in the Wild and Scenic Rivers system.

Recreation opportunities to meet demand, reduce conflicts, and minimize resource damage will be accomplished in this plan by allocating the following amounts to recreation emphasis management: developed recreation - 0.3 percent of the total Forest; dispersed, roaded recreation - 45 percent; dispersed, unroaded, motorized recreation - 5 percent; dispersed, unroaded, non-motorized recreation - 5 percent; special interest sites - 6 percent, and wilderness - 39 percent.

The Plan's allocations result in the Forest's settings being 45 percent roaded, 16 percent unroaded, and 39 percent wilderness.

## **2. MANAGEMENT OF AREAS THAT ARE PRESENTLY UNDEVELOPED**

### **Discussion of the issue**

A total of 556,272 acres of the Forest outside of designated wilderness are presently roadless.

Some of these areas could continue to be managed in a roadless condition, while others could be roaded to provide easier access for the enjoyment of scenic and recreational values as well as for the development of other resources. Areas which can provide unroaded types of recreation, both motorized and non-motorized, are becoming more scarce. People are concerned about how much of these areas should be managed for timber as opposed to management for roadless recreation and wildlife habitat.

Others would like to see some of these areas roaded to provide scenic drives or campgrounds. There is also a concern about how quickly these areas should be entered and the effect roading and management activities have on soils, water quality, old-growth forests, and wildlife and plant species dependent on old-growth forests.

There is an opportunity to provide for a variety of uses in the presently undeveloped areas. These could include unroaded recreation, roaded recreation, commodity production, and special area classification. The selected use would determine which lands would be roaded and how soon roading might occur. There are opportunities to help meet national and regional targets for timber and mineral production.

There is also an opportunity to use roadless areas to help meet management goals or targets for research natural areas, endangered, threatened and sensitive plant and wildlife habitat, and old-growth stands for dependent species such as the spotted owl. These land allocations could be made in wilderness or unroaded recreation areas rather than in timber management areas whenever possible. There are opportunities to maintain the future suitability of roadless areas as potential wilderness additions.

### **Response to the issue**

In order to reach the most appropriate mix of resource management for these non-wilderness undeveloped areas, this plan will allocate 313,677 acres or 56 percent of the current inventoried roadless areas to continued unroaded status. In addition there are 79,840 acres, dispersed throughout the roaded areas, which are dedicated to spotted owls and other old growth/mature dependant wildlife species, where timber harvest will not occur. The remaining unroaded areas will be entered for various resource management activities at a gradual rate.

## **3. WILD, SCENIC AND RECREATIONAL RIVERS**

### **Discussion of the issue**

This issue was considered a part of issue Number 1. (recreation opportunities and use conflicts) in the DEIS and Proposed Plan, but due to public response to the DEIS, the Wild and Scenic Rivers section was greatly expanded in the 1988 Supplement to the DEIS.

In the DEIS three rivers on the Nationwide Rivers Inventory were proposed for further study in the preferred alternative. The Entiat River and two tributaries were analyzed but not recommended for proposed study in the preferred alternative. An eligibility evaluation was made on twenty rivers and streams in the 1988 Supplement to the DEIS and an additional thirteen streams were evaluated after responses from the public were received. A total of thirty-three rivers and streams on the Forest have been evaluated for eligibility. Ten rivers and streams have been determined to be eligible.

Responses to the Draft and the Supplement indicated that some people believe that all of the rivers and many streams on the Forest should be included in a preliminary administrative recommendation to Congress for consideration under the Wild And Scenic Rivers Act. Other people are strongly opposed to the recommendation of some or all rivers and streams (or certain segments), particularly rivers or segments of rivers with private lands within the river corridor. Some are also concerned with the level of classification proposed for those river segments outside wilderness.

There is an opportunity to provide for a variety of uses on eligible rivers and streams on the Forest through preliminary administrative recommendations to Congress for consideration under the Wild and Scenic Rivers Act.

## Response to the issue

Of the thirty-three rivers and streams analyzed, nine of the ten eligible rivers and streams will be recommended to Congress for consideration under the Wild and Scenic Rivers Act. The nine streams total 230 miles within 73,600 acres (60,126 acres of National Forest). Of the 230 miles, 82.5 miles are proposed for Wild River classification, 29 miles are proposed for Scenic classification and the remaining 118.5 miles for Recreational River classification.

## 4. WATER QUALITY AND QUANTITY

### Discussion of the issue

The Forest currently produces more than 4.5 million acre feet of water runoff annually. A number of cities and towns near the Forest use water coming from National Forest lands for domestic purposes. This use will increase as communities grow, and the demand for sediment-free irrigation water will increase as new lands are cultivated. At the same time, increases in most uses (recreation, timber management, roading) will make it more difficult to maintain water quality and meet the demands for increased water quantity. The maintenance of enough clean, cool water for human use and fish and wildlife needs is a fundamental concern. An issue here, also, is protection of water quality and anadromous fish habitat. It is also important to assure that Forest responsibilities are met in regard to the Yakima Indian Treaty fishing rights.

Riparian zone (streamside) management provides the opportunity to enhance wildlife, recreation, scenic values, and fish habitat by providing hiding cover and thermal protection. There is also the opportunity to minimize ground disturbance while at the same time protecting water quality and soil productivity. There are also opportunities to improve the condition of some of the watersheds on the Forest.

## Response to the issue

The 55 percent of the Forest allocated to wilderness and to unroaded areas are located in the higher precipitation zones and will not be subject to vegetative manipulation.

Within the roaded portion there are 47,361 acres allocated to riparian and aquatic habitat protection zone management. An additional 428,795 acres in the roaded portion have reduced management activities in allocations for Scenic and Recreational Rivers, Experimental Forest, Scenery, and Old Growth. Water quality will be maintained or enhanced by the plan adhering to the Forest Standards and Guidelines and Best Management Practices. Water quantity will be increased by 15,500 acre feet due to acres allocated to lands subject to vegetative manipulation through timber harvest.

## 5. WILDLIFE AND FISH

### Discussion of the issue

The Wenatchee National Forest sustains a wide variety of fish and wildlife species because of its variety of habitats. Activities that affect habitat (trees, grass, shrubs, soil, and water) can have a direct influence on fish and wildlife.

This issue includes the maintenance and management of essential habitats and maintenance or enhancement of animal diversity. The issue also involves identification and protection of threatened and endangered species and recognition of wildlife needs for old-growth forest stands. Management activities that affect fish and wildlife habitat are timber harvest, recreation, livestock grazing, road management, and fire management.

Small hydroelectric projects and irrigation impoundments may alter the quantity and quality of available fish habitat. This issue includes maintaining quality of available fish habitat. It also includes maintaining habitat quality for anadromous fish, although the existing habitats are now generally under-utilized. The presumption is that, as a result of the Fish and Wildlife Program of the

Pacific Northwest Electric Power Planning and Conservation Act of 1980, anadromous fish levels should increase to fully utilize the existing habitat.

There are opportunities to manage key habitat specifically for wildlife (e.g., winter ranges, key summer range, old-growth, fawning and calving areas) and for fish (e.g., riparian protection zones) through management area designations. There are opportunities to work more closely with the Washington State Departments of Game and Fisheries, the U.S. Fish and Wildlife Service, and the Yakima Indian Nation, to improve the management of fish and wildlife habitat on the Forest.

### **Response to the issue**

The 55 percent of the Forest allocated to wilderness and to unroaded areas will be retained in a natural habitat condition, including old-growth habitat.

In areas outside of wilderness and roadless areas there are 128,855 acres allocated to old-growth and mature habitat, 47,361 acres allocated to riparian and aquatic protection zone management and 118,742 acres allocated to big game management all of which have key wildlife and/or fish habitat objectives. An additional 299,940 acres in roaded areas have reduced management activities in allocations for Scenic and Recreational Rivers, Experimental Forest, and Scenery. Wildlife and fish habitat will be maintained or enhanced by the plan adhering to the Forest Standards and Guidelines, habitat improvement projects and Best Management Practices.

This plan is highly responsive to the need to maintain and improve resident and anadromous fish habitat.

## **6. OLD-GROWTH FORESTS**

### **Discussion of the issue**

This issue was considered a part of issue Number 5. (wildlife and fish) in the DEIS and Proposed Plan, but due to public response to the DEIS and the growing national concern for old-growth, this issue has been handled as a separate planning problem in the FEIS.

This issue includes the maintenance and management of essential habitats, viewing old-growth, and maintenance or enhancement of vegetative diversity. The issue also involves identification and protection of threatened and endangered species and recognition of wildlife needs for old-growth forest stands. Management activities that affect old-growth are timber harvest and the amount of timber that can be harvested, road management, some types of recreation and fire management.

Some people believe that all existing old-growth on the Forest should be preserved for, biological diversity, dependent wildlife species, scenery or aesthetic values, and/or because they feel that no more old-growth forest will remain in a few years. Others believe that old-growth, both existing and potential, within designated wilderness is more than enough to meet all future needs.

### **Response to the issue**

The 55 percent of the Forest allocated to wilderness and to unroaded areas will be retained in a natural habitat condition, including old-growth habitat. In areas outside of wilderness and roadless areas there are 128,855 acres allocated to old-growth and mature habitat.

Of the 105,900 acres of existing old-growth on allocations available for timber harvest, 85,800 acres are on suitable timber lands. There are 11,500 acres expected to be harvested in the first decade, and an additional 11,600 acres in the second decade. Of the 318,800 acres of existing old-growth, over 307,300 acres (96%) would remain at the end of this ten year period.

## 7. MANAGEMENT OF SCENERY

### Discussion of the issue

The Forest is well known for its sweeping vistas, variety in topography, diverse ecotypes, life forms, and overall natural appearing environment. About 13 percent of the recreational use on the Forest is driving for pleasure and viewing scenery. As more demands are placed on the Forest for timber and other uses, it becomes more difficult to maintain a pleasant forest atmosphere and a natural appearance. Timber management can complement the scenic resource, and visual management can complement wildlife habitat and recreation management. The issue involves the degree of protection scenic values should be given and the cost and impacts of visual management on other Forest activities, such as a reduction in the annual timber harvest and the cost of implementing visual management practices.

There are opportunities to complement other management goals through the creative management of Forest scenery. There are also opportunities to maintain and enhance the scenic quality of the major travel corridors. Finally, there is an opportunity to rehabilitate previously modified landscapes for improved scenic values.

### Response to the issue

The natural appearance of some landscapes will be moderately reduced under the plan. The management direction needed to maintain the key or unique visual resources are contained in this plan.

The land allocations will result in 39 percent of the forest appearing natural, 39 percent of the forest appearing natural to slightly modified and 22 percent appearing modified. Acres by visual quality objective are:

<b>Preservation -</b>	
<b>843,281 acres</b>	<b>39 percent of the Forest.</b>
<b>Retention -</b>	
<b>521,800 acres</b>	<b>24 percent of the Forest.</b>
<b>Partial Retention -</b>	
<b>332,927 acres</b>	<b>15 percent of the Forest.</b>
<b>Modification -</b>	
<b>147,828 acres</b>	<b>7 percent of the Forest.</b>
<b>Maximum Modification -</b>	
<b>318,344 acres</b>	<b>15 percent of the Forest.</b>

## 8. TIMBER MANAGEMENT

### Discussion of the issue

Timber management is a major activity on the Forest. How much timber should be produced in the future and where it should be produced is one of the principal planning problems addressed by this plan. Increasing demands for other uses and implementation of management direction for other resources will reduce future harvests below historic levels. This reduction results from a combination of incorporation of management requirements, increased visual resource management, allocation of areas to roadless management, and additions to the wilderness allocation. For example, the 1984 addition of 340,795 acres of land to wilderness also reduced the acreage available for timber management by about 51,500 acres.

This issue involves other issues such as wildlife habitat, recreation opportunities, road densities, visual and cultural resource management, water quality, and range management. Timber management activities may be in competition with some of these issues such as the need for old-growth forest for dependent wildlife and the need for unroaded recreation areas. This plan responds to these issues through allocation to old-growth and unroaded recreation.

There are opportunities to allocate the most suitable, productive timber lands, where management activities are most cost effective (such as Meadow Creek and the Little Naches) to long-term, high-intensity timber production. There are also opportunities to benefit other resources at little or no extra cost. These include improvement of big-game cover/forage relationships, development of temporary forage for wildlife and livestock, and selective timber removal to improve the visual condition of travel corridors, open views of surrounding landscapes, and promote increased vegetative diversity. These opportunities are responded to through various allocations and management direction contained on Chapter IV.

Another opportunity is the replacement of stands where the heaviest timber mortality and disease is occurring. Per acre timber productivity is expected to increase by 12 percent in the next 50 years as a result of harvesting these stands and planting genetically superior seedlings, as directed by the guidelines in this Plan.

There is a sizable existing and potential supply of cull timber material and small round wood which present marketing opportunities. The main source is from cull material not utilized for sawlogs, and undersized wood from logging residue, precommercial thinning, disease and insect mortality, and stagnated stands. This material has a wide variety of present and potential uses for specialty building materials, energy production, pulp and fiber products, and home firewood.

### **Response to the issue**

This plan schedules harvest on 576,074 acres which includes 73 percent of the tentatively suitable timber production land. Of the 576,074 acres, 303,897 are in prescriptions which will approximate full yield and 272,177 acres will yield from 50-90% of full yield. From these acres, timber harvests are planned averaging 26.1 million cubic feet per year (146.0 MM board feet per year) during the next five decades.

This Plan will provide the best balance between timber management and other resources.

## **9. RANGE MANAGEMENT**

### **Discussion of the issue**

Livestock grazing presently takes place on the Forest through grazing permits issued to 36 local livestock owners. Permitted livestock use has declined in recent years although it is still a significant activity on the Forest. As other uses have increased, potential conflicts with domestic grazing have become more apparent. At the same time, managers are concerned about future development and management of grazing resources for use by livestock.

Livestock grazing has the potential to conflict with recreation, water quality, wildlife, fish, and timber. When livestock use the same meadows, streams, and trails that recreationists use, conflicts may result. Unmanaged livestock use of streamside (riparian) areas may cause compaction of soils and reduced water quality due to stream-bank disturbance. There may be competition between livestock and big game for available forage.

Livestock grazing can complement other activities including recreation, wildlife, and timber. Sheep grazing can retard brush growth in meadows and along trails. Wildlife forage areas can be maintained or improved through intensive grazing systems. Timber management activities such as clearcuts, partial cuts, and thinnings may provide temporary forage areas. Grazing use can also reduce brush and grass competition which will enhance tree establishment and growth.

### **Response to the issue**

The management direction needed to improve vegetative conditions and reduce conflicts is provided for in this Plan. Land allocations with the corresponding standards and guidelines reduces conflict and/or competition between livestock and other resources or uses. This Plan provides for the continuation of permitted livestock use within existing allotments only. There are 406,872 acres of tentatively suitable grazing land within existing allotments and approximately 203,400 acres will be suitable for use in any given

decade. Permitted livestock grazing will be occur on approximately 9 percent of the total Forest acreage.

The level of livestock grazing will increase 1,000 Animal Unit Months in the first decade and will remain constant at approximately 24,000 Animal Unit Months through the duration of this plan.

## **10. CULTURAL RESOURCE MANAGEMENT**

### **Discussion of the issue**

There is an ongoing program to identify and evaluate the historic and prehistoric cultural resources which exist on National Forest lands. To date, over 800 cultural resource sites (archeological sites, historic structures, etc.) have been reported within or adjacent to the Wenatchee National Forest. These sites represent a broad cross-section of uses, spanning a period of several thousand years. Decisions about how best to manage these sites relate to such issues as historic significance; local community interest; American Indian concerns; accessibility, recreational, research, or interpretive values, and compatibility with other management activities.

As land-modifying activities and public use increase within the Forest, so does the possibility of loss or degradation of the cultural resources. The degree of potential impact will depend upon the location and extent of land alteration, the nature of the site, and the concentration of public use. In these instances, appropriate mitigation methods may be necessary to reduce or eliminate the undesirable effects or to recover the historic values of the properties prior to their alteration. The most desirable management prescriptions, however, are those which effectively protect the site in place, are economically prudent, and are compatible with other resource management needs and uses. A central concern is to provide a balance between these other uses and the protection of cultural sites so as to provide adequately for their preservation.

Several opportunities exist in the management of cultural resources. Timber harvesting can complement the cultural resource program by providing opportunities for the identification of previously unknown cultural properties. Field reconnaissance accelerates in proportion to the number of acres scheduled for harvesting. In addition, in heavily vegetated environments, removal of the understory and organic duff layer may provide the only means of locating archaeological sites (Lake Wenatchee, for instance).

Recreational use increases opportunities for interaction between the public and cultural resources. Interpretive programs through which the Forest visitor can both enjoy and appreciate the cultural resources can be planned and developed with community involvement. One such area is the Stevens Pass Historic District. An active effort to solicit public opinion well in advance of the development of a management direction for an area or property could help to define the level of anticipated demand for its use and preservation.

There is also an opportunity, in those instances where on-site preservation is not possible, to carry out data recovery which could contribute locally and regionally to significant research questions and, in some cases, could build a deeper awareness of the contributions of American Indians to the public heritage.

### **Response to the issue**

Cultural and Historic resources will be protected in place on the 55 percent of the Forest allocated to wilderness and to unroaded areas. For the remaining 45 percent of the Forest the Forest-wide Standards and Guidelines should offer protection from the moderate to high level of impact on cultural resources from other land uses and management activities.

This Plan provides for a variety of management options and opportunities for enhancement of cultural resources. The number of sites identified will be high. Good accessibility of managed sites to the public will also be provided.

## **11. CUMULATIVE EFFECTS OF MANAGEMENT ACTIVITIES**

### **a. Water Quality and Quantity Cumulative Effects**

Cumulative effects of timber harvest activities on watersheds (on water quality, quantity, and runoff timing and on fish habitat) in intermingled ownerships is a major concern. Unfortunately, activities, especially the rate and method of timber harvest, of neighboring land owners are unknown. Indications are that most commercial timber on the intermingled lands will be harvested within the next 10-15 years. Under the Forest's selected management scheme, the Upper Yakima River, Swauk/Naneum Creeks, Taneum/Manastash Creeks, and Little Naches River watersheds are the most likely to experience impacts from cumulative effects. On a case-by-case basis, these watersheds will need to be analyzed for possible impacts. Management activities on National Forest lands may need adjustment as a result of detailed sub-drainage analysis.

Overall, water quality should be maintained with adherence to the Plan's Standard and Guidelines and the Region's Best Management Practices. Water quantity will be increased by 15,500 acre feet, primarily due to 576,074 acres of suitable timber lands subject to vegetative manipulation through timber harvest.

### **b. Intermingled Ownership and Scenery Cumulative Effects**

Travel corridors that have a significant amount of private land could have cumulative effects upon the scenic quality. Areas where timber harvest on private land could affect scenic quality are: Lower Entiat Valley, Icicle Valley, Blewett Pass area, Lower Ingalls Creek, Shaser Mountain area, Stevens Pass (Highway 2), Cle Elum Valley, Kachess Basin, Cooper Lake Basin, Taneum-Manastash--Quartz Mountain, upper end of South Fork Tieton, Naches Pass north along the crest to Snoqualmie Pass, and Quartz Mountain north along the ridge to Blowout Mountain. Large blocks of these "checkerboard" landscapes will not likely be kept in a natural appearing condition. These areas will definitely have increased

alteration of the landscape with the areas being seen from the travel routes, from recreation roads and trails, and high vista points within the viewshed.

## **12. SOCIAL ECONOMIC**

### **a. Forest Influence Zone**

The Forest Influence Zone is the geographic area where the majority of forest resources such as recreation, range, timber, water, and wildlife are first used and where public concern is concentrated. Chelan, Kittitas, and Yakima Counties comprise the Forest Influence Zone for this analysis.

### **b. Population**

The 1983 population of the Forest Influence Zone was 248,400 persons. This is almost 6 percent of the State's population. About one-half of the population lives in rural settings; the other half lives in urban settings. This area has an older age distribution than the State average. Chelan and Kittitas counties have proportionately lower minority populations than the State. Yakima County has a proportionately higher minority population due to the Yakima Indian Nation and a large Mexican-American population. The rate of population growth in the three-county area has been slower than State-wide over the last 40 years.

### **c. Economy**

Economic activities in Chelan, Kittitas, and Yakima Counties are closely tied to the activities of the Wenatchee National Forest. A large proportion of the residents of this area rely on the commodity and amenity resources of the Forest. Economic activities affecting local individuals include logging, sawmill operations, commercial livestock operations, tourism, and various recreational pursuits. Residents of the study area participate in nearby forest recreation activities such as hunting, fishing, hiking, and a range of winter sports, thereby generating demand for recreation-related goods and services.

The economy in the area east of the Wenatchee National Forest rests heavily upon agricultural production. Yakima County is the State's leading agricultural county with a diversified farm base. Its principal products include apples and soft fruit, cattle, hops, potatoes, and wheat. The economy of Chelan County depends primarily upon deciduous orchard crops, with apples being the predominant crop. Kittitas is primarily an agricultural county producing crops and livestock.

The central Washington area is very important to the State's economy because of its agricultural base. These counties support 36 percent of the State's agricultural employment with Yakima County alone supporting 27 percent (ESD 1984).

The agricultural sector will remain the dominant force in the economy of central Washington. The strong demand for agricultural products abroad, as well as the anticipated strength of domestic demand will, if anything, increase the importance of agriculture in central Washington. This trend should continue at least through 1990 and may become even more pronounced in the future.

The lumber and wood products industry in the Forest Influence Zone represented 3.7 percent of the State's employment for that industry in 1983 (ESD 1984). Yakima County has the largest lumber and wood products work force among the Central Washington counties, with 1,048 workers in 1983. This represented 17 percent of manufacturing employment in the county, and 2 percent of total employment. Chelan County's lumber and wood products industry employed 293 workers in 1983, for respective manufacturing and total county employment shares of 14 percent and 1.5 percent. The lumber and wood products work force of 72 in Kittitas County was much smaller in absolute terms, but still accounted for 17 percent of all manufacturing jobs in the county and 1.1 percent of total employment.

The forest products sector of the economy will likely decrease in importance in the future. The extent of this decline, however, will be influenced by several factors. Most notably, the reduction in timber available from private land may cause an overall slump in timber production in the region, and could very likely contribute to a reduction in

capacity or closure of local mills. This reduction could lead to further pressure for increasing the harvest from National Forest System lands. This pressure should become particularly intense in the 1990's, or earlier, should housing demand rebound substantially from its low levels in the early 1980's.

Visitors to the Wenatchee National Forest have an impact on the local economy because of expenditures they make for goods and services at establishments nearby. Data on the number of retail trade establishments are available from the U.S. Census Bureau for States and counties. The variables selected as indicators of local economic dependency on recreational use include the following: 1) hotels, motels, and recreational vehicle parks; and 2) eating and drinking establishments. While these components of the service industry receive a significant amount of business from nontourists, trends in these two service industries reflect growth or decline in the tourist industry.

A particularly active sector of the regional economy will be the tourism sector. An increase in summer and winter recreation activities, particularly along the major travel routes, is expected in the 1990's. The increase in the cost of energy will likely focus the greatest recreational demand near the transportation corridors leading from the Puget Sound area population centers. Recreational demand will be greatest in those areas close to the Everett-Seattle-Tacoma metropolitan area.

The importance of the agricultural sector in the Forest Influence Zone is recognized through protection of water quality. The Wenatchee National Forest will provide riparian zone (streamside) management practices to protect this important resource.

The Plan provides for a harvest of 146 MM board feet per year. This recognizes the importance of the forest industry while providing for and protecting other resources.

Additional areas are allocated to roadless areas, wildlife habitat, and recreation in recognition of the changing demands of society on the Wenatchee National Forest.

# CHAPTER IV

## FOREST MANAGEMENT DIRECTION

### A. INTRODUCTION

This chapter presents the management goals, objectives, and standards and guidelines that constitute direction for resource management covered by the Plan. Included in this chapter are:

#### 1. Forest Management Goals

- Multiple use and other goals established in the planning process to develop the Plan. All goals are written within the context of the land's capability to provide resources.

#### 2. Desired Future Condition of the Forest

- What the Forest should look like at the end of 10 years, and at the end of 50 years if the management direction is implemented.

#### 3. Forest Management Objectives

- The level of goods and services which are anticipated as the Plan, with projected budgets, is fully implemented. This display is followed by a narrative summary of resource outputs and schedules.

#### 4. Forest-wide Standards and Guidelines

- These establish the bounds or constraints within which all practices will be carried out in achieving the objectives of this Plan.

#### 5. Management Prescriptions

- These contain a goal, a description, and standards and guidelines by Resource Element for each management area. The standards and guidelines shown will meet management Goals and Objectives; higher ones may be achieved.

## **B. FOREST MANAGEMENT GOALS**

Forest Management goals are statements describing a desired condition to be achieved sometime in the future. They are expressed in general terms and are timeless in that they have no specific date by which they are meant to be completed. The goals for the Wenatchee National Forest by resource are:

### **Recreation**

Provide a well balanced array of recreation opportunities across the breadth of the recreation opportunity spectrum in accordance with resource capability, public demands and expectations for outdoor recreation.

Provide a diverse system of safe, well-maintained trails for the enjoyment of all users.

Respond to new opportunities to develop partnerships and joint ventures with other agencies and the private sector to magnify our abilities to meet expanding public demand for outdoor recreation.

Provide an information program to assist the public in understanding management of various resources and to assist them in their search for a variety of challenging and pleasing experiences.

Provide for the identification, protection, interpretation, and management of cultural resources so as to preserve their historical, cultural, archaeological, and/or architectural values for the benefit of the public.

Maintain and enhance the visual landscape character of the Forest.

Provide to the Forest visitors a variety of landscape character with visually appealing scenery.

### **Wild, Scenic and Recreational Rivers**

Maintain recommended rivers and streams to protect their highest classification level until Congress takes action on the preliminary administrative recommendation.

### **Wilderness**

Manage designated wilderness to perpetuate wilderness character, natural ecologic processes and to provide outdoor recreation opportunities appropriate in wilderness.

### **Wildlife, Fish, and Sensitive Plants**

Manage critical wildlife habitat to improve the status of threatened and endangered species to a point where they no longer need protection under the Endangered Species Act of 1973.

Enhance habitat to prevent the need for listing species on the Regional Forester's sensitive species list.

Manage fish and wildlife habitats to provide for recreation opportunities for fishing, hunting, and viewing.

Protect, restore, and enhance current and long-term fish habitat capability.

### **Riparian Areas**

Maintain and enhance riparian management areas to perpetuate their distinctive resource values to: (a) achieve and maintain habitat conditions necessary to ensure long-term natural production opportunities for desired fish species, (b) maintain water quality that meets or exceeds State AA Water Quality Standards, and (c) provide diverse wildlife habitat.

Range

Develop, protect and manage the range resource to maintain and improve vegetative conditions compatible with the management area goal.

Provide opportunities to enhance other resource values through the use of livestock to shape desired plant communities.

Timber

Provide for timber harvest to help meet local and national demand for wood products and provide an economic benefit to the American people.

Use silvicultural techniques that insure prompt and adequate regeneration of appropriate species. Optimize growth, minimize disease and insect losses, and protect or enhance long-term site productivity.

Manage vegetation to maximize total net public benefits compatible with management area objectives.

Provide information about the opportunities available through the Timber Management Program including firewood, Christmas trees, greenery, post and poles, transplants, and other specialty products.

Provide silvicultural advice and information through the Cooperative Forestry Program to local private forest landowners.

Use silvicultural techniques to provide a diversity of forest ecosystems

Water

Maintain watershed conditions and favorable streamflow to insure meeting or exceeding Federal and Washington State water quality standards.

Soil

Manage the soil resource of the Forest by using management practices that will maintain or enhance its productive properties.

Air

Prevent significant adverse effects of air pollutants and atmospheric deposition on Forest resources through compliance with the Clean Air Act and State and local regulations.

Minerals

Help meet the demand for mineral resources by *encouraging and facilitating the exploration, development, and production of mineral and energy resources, while ensuring that these activities are integrated with the use and protection of other resources.*

Lands

Strive towards a land ownership pattern that will provide for better management, protection and access to the forest.

Provide for occupancy and use of National Forest System land consistent with this forest plan and applicable laws and regulations.

Provide energy and transportation corridors to meet Regional and National needs

**Facilities**

Develop a transportation system that is designed and operated to standards appropriate to the planned uses, considering safety, cost of transportation, and effects upon lands and resources.

Provide for the development, betterment, and maintenance of fire and general purpose administrative facilities in support of National Forest System needs.

Maintain Forest facilities for the safety, enjoyment, and well-being of the user.

**Protection**

Implement an efficient fire protection program which is responsive to resource management objectives and prioritizes the protection of life, improvements, and private property.

Use prescribed fire to meet resource and land management objectives, as appropriate.

Protect Forest resources and facilities, and cooperate with State and local law enforcement agencies in the protection of visitors and protection of their property from theft, vandalism, or destruction.

Prevent or reduce losses due to insect and disease by treatment of vegetation to reduce the risk of epidemic outbreaks.

**Research Natural Areas**

Protect existing and nominated areas for the Research Natural Areas System to provide:

1. Baseline areas against which effects of human activities can be measured.
2. Sites for study of natural process in undisturbed ecosystems.
3. Gene pool preserves for all types of organisms, especially rare and endangered types.

**Biodiversity**

Maintain representatives of native and desirable non-native plant and animal species and the plant communities in which they are found. Provide for all successional stages of terrestrial, aquatic and riparian plant associations in a distribution and abundance to accomplish this goal. Maintain or enhance ecosystem function to provide for long-term integrity and productivity of biological communities.



## **C. DESIRED FUTURE CONDITION OF THE FOREST**

It is likely to be several decades before effects of the management direction contained in this chapter are apparent throughout the Forest. The following descriptions of physical and biological settings assume that direction from this plan will remain constant through the 50 year horizon.

### **THE FOREST IN TEN YEARS**

#### **Recreation**

There will continue to be a diverse array of recreation opportunities and settings available to the public as described in the Recreation Opportunity Spectrum Classes. Only slight changes in recreation opportunities will have occurred over 10 years time as management activities have progressed, new roads have been constructed, and vegetation managed.

Developed recreation sites in the more modified and developed end of the spectrum will have higher standards of development with more facilities for user comfort and convenience than present sites.

Most recreation sites that receive moderate to heavy recreation use will be rehabilitated or reconstructed to a high quality level to better serve the recreating public.

There will be about 1,250 People-At-One-Time (PAOT) capacity added to the developed recreation sites. This will include expansion of existing sites and construction of new sites. Additional capacity may be provided by the ski areas and other private sector development on the Forest. The number of Recreational Residences and Organization Sites will remain about constant.

Visitor use fees will be charged at the more highly developed recreation sites to help defray costs of administration and maintenance.

Management of dispersed recreation areas such as undeveloped access points on rivers and undeveloped camping sites along forest roads, will become more challenging in the next ten years. Popular

areas will continue to see increasing visitor use. Over crowding and user conflicts will become more common. Visitors in greater numbers will seek out opportunities to enjoy activities related to specialized recreation equipment. Use of boats, rafts, other water craft, motorcycles, bicycles, mountain bikes and ORV's will continue to grow. Maintenance and administration of dispersed areas will need greater management attention and put greater pressure on recreation budgets. Many visitors will experience decreased satisfaction with crowding and conflicts and will seek out new opportunities. Less popular and lightly used areas will receive increasing visitor use.

There will be approximately 388,000 acres of non-wilderness unroaded areas remaining at the end of the first decade.

Winter sports and snow related recreation activities will increase in the next ten years. Visitor use at developed Alpine skiing areas will steadily increase. Mission Ridge, White Pass and Stevens Pass Ski areas are all addressing plans for some expansion. Cross-country skiing and snowmobile use is increasing dramatically. Management activities, and recreation use will require greater coordination, particularly winter use of the Forest Road System.

Increased demand for very specific recreation pursuits will result in allocation of specific areas to specific activities in order to avoid serious user conflicts. Education of users in "light on the land" principles and stressing of user ethics will be employed.

The scenic and recreation qualities of the Mather Memorial Parkway will be retained through the implementation of a management prescription. Recreation sites and facilities in the Parkway will be given high priority for upgrading and rehabilitation.

New technology will bring new recreation equipment and activities to the Forest. Adjustments will be necessary in recreation use patterns and recreation facilities to manage new activities in coordination with existing uses. Greater coordination will be occurring to minimize user conflicts in recreation areas. New regulations will be necessary to manage new activities within land use constraints.

## DESIRED FUTURE CONDITION

Greater coordination will be occurring to achieve the appropriate balance between commercial recreation activities and individual recreation use by the general public.

Use of road and trail systems by motorized recreationists will continue to grow, generating the need for more intensive transportation planning and management. Opportunities for ATV use will be considered.

Use for all types of trails will increase. Many trails will receive heavy maintenance work or reconstruction to keep up with the impact of heavy recreation use. Approximately 400 miles of new trail will be constructed in this decade. About 120 miles of this new construction will provide improved opportunities for motorized use on loop trails.

The variety in recreation settings will be retained through integrated resource project planning, resulting in special recreation settings in the Forest being protected and retained.

Vegetation management plans will be developed for all developed sites to perpetuate the desired vegetative characteristics and to provide for user safety.

### Wild and Scenic Rivers

The rivers and streams recommended for classification under the Wild and Scenic Rivers Act will be protected to retain their attributes at the highest possible classification.

### Wilderness

The acreage of designated Wilderness will not change under this management plan. The 841,034 acres will be managed to retain 207,920 acres in Pristine WROS class, 258,820 acres in Primitive WROS class, 117,220 acres in Semi-Primitive WROS class and 11,540 acres in Transition WROS class.

Wilderness resource values will be somewhat improved through management of recreation visitor use and increased user knowledge of proper use ethics. Although 10 years is barely sufficient time to

see substantial improvement, a general upward trend should be apparent in monitoring results.

The expected increase in visitors will result in more management actions employed to reduce use in heavily impacted areas, disperse use into areas that can accommodate more use, and more regulations to alleviate specific problems.

Wilderness user education programs will continue to be a major tool in improving the social and biological wilderness resource conditions.

Restoration and revegetation of heavily impacted areas will be on-going in areas where visitor use has resulted in loss of vegetation and unnatural or accelerated soil erosion.

The existing wilderness entry permit system may be expanded and/or new systems installed to restrict use to the appropriate carrying capacity of a specific wilderness, or portion of wilderness, where visitor use approaches or exceeds the "limits of acceptable change".

The current trail system will continue through the ten-year period. A few miles of trail may be taken off of the inventory to meet wilderness management objectives. There will also be some reconstruction of trails with short rerouting to mitigate resource impacts.

Natural occurring fire will be allowed to have a more natural effect on wilderness ecosystems. However, Wilderness fire management objectives may require that some fires that threaten other Wilderness resources or resources outside Wilderness, be suppressed.

Resource activities authorized as prior existing rights will continue under the provisions of the Wilderness Acts.

### Cultural Resources

Over the next 10 years, the Forest will continue its efforts to identify, evaluate, preserve, protect, and interpret the cultural resources present within the area administered by the Forest. In addition to legislative mandates, there is recognition that, as a

non-renewable resource and a fragile, irreplaceable link with past human life, special consideration must be given to cultural properties in the course of any land management activities.

Ideally, over the next 10 years, a systematic inventory will be carried out well in advance of Forest projects, based on a professionally sound survey strategy.

As these inventories are completed, a data bank will be developed and organized so as to facilitate comparisons of individual cultural properties, provide a basis for evaluations of significance, and aid in the evaluation of cultural resource needs against other resource management goals so that informed decisions can be made. This basic data base should be available by the end of the 10 year planning period.

In the next decade, the bulk of the inventory will continue to be in support of the timber sale program. Of the 630,494 acres of suitable timberland on the Forest, it is estimated that about 450,000 acres will have cultural resource inventories completed. Approximately 25 percent of these acres will require further investigation due to known site distributions, or because of high cultural resource sensitivity. The remaining 75 percent will be cleared of the need for any further cultural resource considerations. There will continue to be substantial inventory needs on those Forest acres (such as wilderness) that are not part of the scheduled timber harvest base. Approximately 81,500 acres of these lands will have an inventory completed by the end of the decade.

The SI-2 prescription will allow for specific management for cultural values. Within these areas, management activities will be directed to the protection, preservation, and enhancement of the cultural resources present on those acres.

Cultural resource management plans will be developed over the next decade for the Salmon La Sac Guard Station, Stevens Pass Historic District, Naches Trail, American Ridge Ski Bowl, and the Leavenworth Ski Hut. See Appendix A for a full listing of these projects. These plans will specify overall management objectives, adequate measures for protection, and a program of work to accomplish these.

Small data recovery operations may be necessary over the next 10 years, particularly in the Naches watershed. Here conflicts between the management of archaeological resources in place and timber management needs are likely to be more frequent than at present. It is also possible that by the end of the decade, there will have been two major data recovery efforts on the Forest--at Lake Wenatchee and on the Naches Ranger District. The purpose of these efforts will be to recover archaeological material that is currently threatened by river action and/or vandalism. Several data recovery projects may be necessary to mitigate the effects of campground rehabilitation or construction. The data recovery projects may significantly contribute to current archaeological research by helping to refine research goals and by developing a Regional context within which to evaluate and manage other similar or associated sites.

The degree to which the above conditions are met by the end of the next decade will depend, of course, upon a sustained investment of time, expertise, and funding.

### Scenery

The Wenatchee National Forest will remain well known for its outstanding mountain, valley, and lakeshore scenery. It is characterized by a natural appearing environment with a multi-level vegetative character. Large, old trees exist along most recreational use areas and viewsheds.

The Forest will continue to retain, maintain, enhance, rehabilitate, and perpetuate the scenic qualities through visual resource management practices of key areas.

The natural appearance of landscapes seen from major viewsheds and recreation sites will be changed by a variety of vegetative manipulation practices. In these areas, changes will provide an attractive, visually pleasing forest setting, emphasizing the natural appearance of the area. Vegetative management will change existing Forest stands to more open, less dense stands. It will be characterized by small openings and areas of shelterwood type treatment, leaving clumps

## DESIRED FUTURE CONDITION

and individual large trees. These will be inter-mixed with different size trees and blended with the existing vegetation.

Within areas of intermingled ownership, nonfederal lands will have undergone timber harvest with limited consideration for the visual resource. The adjacent National Forest lands will appear altered but will blend into the landscape. Boundaries between private and federal ownership will have a diverse and contrasting form, line, color, and texture.

Most recreation sites and travel routes will retain their present scenic character. The general atmosphere along scenic travel routes, viewpoints and high recreation use areas will continue to have a feeling of a natural forest environment.

Sightseeing will be enhanced by using timber management to open up views to distant peaks, unique rock forms, unusual vegetation, or other features of interest.

### Wildlife and Sensitive Plants

During the first decade, active bald eagle nest sites are expected to increase from one to five or six. Bald eagle populations are expected to increase in summer and winter as fish and waterfowl habitat improvements are completed and populations increase State-wide.

Peregrine falcon sightings are expected to increase as the population of this species increases nationally. Peregrine falcons may be re-established on the Forest in cooperation with the Washington Department of Wildlife. As these populations increase, one or two of the potential nest sites on the Forest could become occupied.

Sensitive plants and animals will be inventoried during this decade and information gathered to develop Species Management Guides. Activities that threaten these species will be reduced from the previous decade. Habitat improvements to benefit sensitive plants and animals are commonly evaluated with some being applied to enhance populations.

The number of deer and elk are expected to change because of the change in habitat from managing winter range, spring range habitat improvements, increased concern for elk and deer in timber sales, and partnership with other agencies and groups (Elk Foundation; Washington Department of Wildlife, Chelan County Public Utilities District, etc.). These increases will result in more hunting opportunities. Road closures will increase and result in increased quality hunting opportunities. Opportunities and demand for viewing of big game, small game, and non-game species will increase.

Some types of old growth habitat will increase in the first decade (Subalpine). Other old growth types are expected to decrease in acreage (ponderosa pine, Douglas-fir, grand fir). Spotted Owl habitat areas will have about a 5% reduction. Opportunities to see spotted owls and old growth will be maintained. Adequate old growth will be preserved to provide for species and community diversity of these environments.

The Forest-wide potential population of primary cavity excavators will decrease due to past practices and slow accumulation of new snags in young stands. Woodcutting of standing dead trees will be more closely regulated, timber sales will leave additional live cull or dead trees, salvage sales will give dead trees priority for wildlife, and habitat improvements for primary cavity excavators will occur. These activities will begin to change the downward trend of this habitat and reduce distribution problems that presently exist.

Mountain goat habitat will be more intensively managed during the first decade. This will either maintain or increase the number of animals. Recreational viewing sites of mountain goats will be designed to have minimum or no effects on goats. Road closures will be adopted to reduce the impacts of improved access on these species.

Old growth and mature habitat for marten and pileated woodpeckers will decrease as logging of this habitat occurs. A network has been established to maintain distribution and viable populations for these species. Even though the habitat will be decreasing, no threat to viability is anticipated.

The group of species sought for in trapping uses a wide array of habitats. These species have been abundant in the past and are expected to remain so. Some species will increase and some decrease in numbers.

There are three species of grouse on the Forest that have been found in abundance in the past. These species have experienced a general downward trend due to improved access which has resulted in increased disturbance. Habitat improvements for these species will be done to halt the downward trend.

Special habitats such as some ponds, caves, and cliffs will be inventoried and management plans developed to maintain their associated values.

Raptor nests will be protected from site disturbing activities.

### Old Growth

At the end of the first planning decade it is estimated that there will be 307,300 acres of old growth on the Forest (this does not include ingrowth). Old growth acres will have declined somewhat by the end of the decade, but not as much as Table IV-2 indicates (because ingrowth of stands to an old-growth condition was not included in the table values). In wilderness and other non-harvest acres there should be more stands becoming "old growth" than those that are set back successional as a result of disturbance.

There should be adequate old growth for biological diversity, preservation of aesthetic qualities and for wildlife and plant habitat by the end of the first decade. The importance of old growth on National Forest System Lands will increase as private old growth acres are harvested.

### Fisheries

Ten years from now, fish habitat within the Forest will be in at least as good condition as the current situation and should be improving. Implementation of Best Management Practices, forest-wide standards and guidelines, and the Riparian Prescription is maintaining excellent water quality and providing the stream structural components necessary for diverse, high quality aquatic habitat. While riparian areas along many Class IV channels and some seeps, springs and Class III streams have converted to early seral stages, management practices have maintained channel stability and water quality, thus protecting downstream fish habitat. Fish habitat quality has also improved due to integration of fish habitat management into other resource activities and implementation of fish habitat and watershed improvement projects.

Anadromous fish production should begin to increase during the period. The increase will be primarily tied to improvement in upstream and downstream survival, and as a result of actions initiated through the Northwest Power Planning Council, Bonneville Power Administration, mitigation settlements such as for Rock Island dam and the U.S. Bureau of Reclamation. The Forest Service will be a full partner with other state and federal fish management agencies, the Yakima Indian Nation and Confederated Tribes of Colville and private organizations in the management of fish and fish habitat.

An ongoing habitat inventory and monitoring program will be in place with initial inventories of most fish-bearing streams and many lakes on the Forest complete. This knowledge will allow Forest managers to better predict effects of management of the various resources on fish and fish habitat, quantify changes in habitat over time and minimize/avoid any negative impacts. Inventories will also be the basis for habitat rehabilitation and enhancement.

By the end of this period a habitat management plan including habitat improvement priorities should be in place for most sub-basins. These plans will be based on inventories and coordinated with other agencies, tribes and private groups. The Forest will have an active habitat and watershed improvement program.

## DESIRED FUTURE CONDITION

Resident trout habitat quality should be stable to improving as is the anadromous fish habitat. Habitat maintenance and improvements combined with some improved access, especially in areas designated for roaded recreation and timber production could improve fishing opportunities. However increased fishing pressure may produce a need for special regulations to prevent over-fishing of wild stocks.

During this period, it is anticipated that a large percentage of private timberland within the National Forest boundary will be harvested. The potential effects of intensive timber management in these drainages on fish habitat are better understood and land managers are better able to identify impacts when making management decisions. Cooperative monitoring of the cumulative effects issue continues between the Forest, State and Tribal Agencies and private companies.

### Riparian Areas

Ten years from now, riparian areas on the Forest will exhibit an overall improving trend. Previously degraded habitat will be recovering, while areas of good riparian habitat will be maintained. Implementation of the Forest-wide Standards and Guidelines and the Riparian Prescription will maintain excellent water quality and provide the structural components necessary for diverse, high quality riparian habitat. Riparian management objectives for projects will be established based upon site-specific conditions and on the analysis of riparian conditions within the sub-drainage. Management decision will be made in favor of riparian dependent resources where conflicts exist.

Riparian areas associated with Class I and II streams, lakes and wetlands will be characterized by vegetative conditions that emphasize advanced seral stages. Riparian areas along many Class IV channels and some seeps, springs and Class III streams will have been converted to early seral stages using management practices that maintain channel stability and water quality, thus protecting downstream fish habitat. Riparian habitat associated with Class III and IV streams, seeps and springs will provide diverse wildlife habitat conditions necessary to maintain viable wildlife populations distributed by sub-drainage.

Forest inventory and monitoring efforts during the first decade will have provided information essential to improve the management of these sensitive areas. In addition, research sponsored by Forest Service, Timber-Fish-Wildlife, and other programs will be providing information needed to validate standards and management techniques. The standards used to evaluate riparian areas will have been refined. Over most of the Forest, the interim values assigned to the riparian standards in this Plan may need to be revised or replaced by values that have been established on a sub-drainage basis.

The following statements describe the desired future condition for the major elements of Riparian Areas for details regarding the management standards applicable to each element.

Sediment - The sediment budget in each sub-drainage on the Forest is well within the range and frequency adapted to by indigenous aquatic communities.

Temperature - Summer stream temperature regimes are well-moderated with limited day to night variation. The generally cool summer water temperatures found in streams throughout the Forest are well within the tolerance levels of aquatic organisms historically found in the system.

Channel Morphology - Inherent (historic) channel forming/maintenance processes continue to operate without substantial long-term or drainage wide modifications. Relatively large pools are frequent and well distributed even during low flows. Frequent and well-distributed complexes of large wood (long and large diameter) interact over time, through a wide range of flows, to create a diversity of aquatic habitat types. A combination of these features provides a variety of functions that are important for maintaining the general health of riparian ecosystems.

Floodplain/Riparian Management Area - Floodplains and riparian management areas are fully occupied by historic plant community types. The structural and functional properties of these dynamic, multi-age communities are maintained, promoting floodplain, bank, and channel stability, resiliency to disturbance, and habitat diversity. Floodplain and wetland management promotes

the capability for detention storage of water during flood events and inherent ability to provide long-term stability of critical summer base flows.

Properly functioning floodplains also act as sites for storage of large woody debris and sediment, making this material available to maintain a relatively stable distribution, quality, and quantity of fish and wildlife habitat through time that is characteristic of the area potential. Dead/defective tree habitat, critical to the survival of many wildlife species, is maintained at least 80% of the theoretical biological potential level within riparian habitats associated with perennial streams, lakes and wetlands in sub-drainages.

Fish Passage - Access to all natural/historic fish habitat is maintained so that habitat availability is not reduced by man's activities.

### Vegetation: Trees

The plan will implement a timber harvest rate that is reduced from the present. Areas harvested in the past 30 years will continue to develop through seedling, sapling, and pole stand stages. The oldest of these areas will be nearing the age when commercial thinning may begin.

Reduced numbers of large defective logs and snags will be available for fuelwood. Access into previously unroaded areas will provide fuelwood, but at longer haul distances.

Seed orchards will begin to produce genetically superior reforestation seed that will produce faster growing and disease resistant trees. Timber related vegetation management practices that are expected to occur include; clearcutting, shelterwood seed cutting, partial removal methods and final removal.

Approximately 57,900 acres of mature and two-storied stands will be harvested using clearcutting and shelterwood methods. These acres will be re-vegetated using a diversity of trees, shrub and forb species.

Age class distribution changes will reflect the shift from mature and two-story stands to seedlings. It is anticipated all stands will be reforested within five years through planting and natural regeneration.

### Vegetation: Forage

In the first 10 years, emphasis on management of forage will be placed on revision of outdated range allotment plans, and more intensive administration of existing range allotments. With updated management plans, enhancement of other resources through use of livestock will begin, but results will not be readily apparent until near the end of the decade. Increases in livestock use will be accommodated through more intensive management on existing allotments, or through conversion of existing sheep allotments to use by cattle.

### Vegetation: Research Natural Areas

A viable network of Research Natural Areas will be recognized for the purposes of: Monitoring change; maintaining biodiversity (biological community, ecological and geological process maintenance), and researching natural ecosystems.

### Water

During the next decade, the significance of water-related issues on the Forest will continue to build. The quality and quantity of water on the Forest will be significant concerns for diverse interests. Irrigation will continue to be one of the major uses of water from the Forest. Major emphasis will be placed on the protection and improvement of fish habitat both on the Forest and downstream.

In ten years intensified efforts will be underway on National Forest System lands to improve watershed conditions in some drainages, while existing conditions will be maintained in others. Factors promoting improved watershed management will include a greater emphasis in planning on a drainage basis, increased technical support, improved resource inventories, improved management practices, more aggressive watershed

## DESIRED FUTURE CONDITION

and fish habitat improvement programs, and increased coordination of management activities with other ownerships and agencies. A primary objective will be to keep pace with State and Federal water quality management direction as it continues to be refined through the decade.

On the National Forest, water resource inventories will be scheduled and accomplished to meet the needs of project and Forest planning. A baseline and project level monitoring program will be in place to begin meeting the feedback requirements of both the Forest and the State in regards to management and environmental regulation. Watershed improvement projects will be identified and accomplished based on an updated needs inventory. For example, rehabilitation of the Holden Mine site on Lake Chelan will have been completed. Water rights necessary to achieve the multiple-use objectives of the Forest will be obtained in response to water resource developments and adjudications. All of these activities will be coordinated with other resources and management entities to a much greater extent than they are at present.

The overall condition of the water resource on the east side of the Cascades will be determined by the health of individual watersheds. These conditions will be the result of both management activities on National Forest System Lands, and management activities on other ownerships, both intermingled with and downstream from the National Forest. The net effect of these activities on area watersheds will be in large part dictated by efforts to achieve coordinated resource management planning among the various ownerships.

### Air

Application of statutes contained in the Clean Air Act and compliance with State and Local regulations will have resulted in no significant deterioration of air quality. Base level values for Air Resource Management will have been established.

### Soil

By the end of the decade, Forest-wide soil productivity will be about the same as it was in 1989. Ten years is too short a time frame to detect any significant changes in soil productivity. Also, by this time some long-term soil productivity study sites will have been established on the forest. (PNW research - F.S. coop studies).

Best management practices (B.M.P.'s) are well accepted and are clearly understood by everyone on the forest. The B.M.P.'s will have been completely reviewed and revised at least once by the end of the first decade. Project work plans will call for more monitoring to ensure that Forest wide standards and guidelines have been met. The Order II level soil survey for all National Forest Lands outside wilderness, and the Order III level soil survey for all National Forest Lands inside wilderness, will have been completed by 1992. This soil information will have been installed into the Forest GIS data system, where it is readily available and can be easily updated as new or better information becomes available.

### Minerals

*Locatable minerals:* Since the Forest Service has little influence on the demand for locatable mineral resources, the conditions it desires to achieve is that of being able to meet the established goal for mineral resource management no matter what the demand is. That goal is to encourage and facilitate mineral activities over the Forest, while ensuring those activities are integrated with the use, conservation, and protection of all other resources.

Without new major discoveries, technological improvements, or substantial changes in the supply/demand situation, the number of mining claims will probably decline from 11,000 to the pre-Wenatchee gold rush number of about 4,000. The remaining claims should concentrate on areas having a known potential for the occurrence of locatable mineral commodities. Those claims will more accurately indicate where mining activities can be anticipated. This will be supplemented by an up-to-date mineral resource inventory and evaluation, and by industry's response to an

inquiry about where future mineral activities will occur. With this information, the Forest will be in a better position to appropriately plan and provide for future locatable mineral resource activities.

Leasable Minerals: As with the locatable minerals, the interest in these mineral commodities is likely to decline. Without a return to the energy shortages of the 1970's, the number of oil, gas and geothermal lease applications will decline and interest in leasing coal will remain negligible. Geophysical surveys and exploratory drilling for oil and gas in the Columbia Basin area will provide better information as to where and if oil and gas resources are likely to be found on the Wenatchee National Forest. Geothermal investigations may also be performed, which will better delineate areas having geothermal resource potential. Based upon this newly acquired data, the remaining leases will concentrate on areas with a high potential for the occurrence of energy minerals. The Forest will then be in a position to concentrate its management efforts on those areas where full scale development is anticipated.

Common Variety Minerals: The public's interest in these mineral commodities will continue at about the present level. The resource will continue to be inventoried to identify sources needed for specific projects. Where shortages are identified, the resource will be preserved to ensure adequate supplies are available to serve the needs of the Forest. A Forest-wide appraisal of mineral materials will be completed, and up-to-date fair market values for sales of a small scale will be established. The result will be better service to those demanding the use of this resource, and a better return to the public for the use of the resource.

Recreational panning, sluicing, dredging and rockhounding: The demand is expected to continue to grow in the future. Areas which would provide land that are available for such activities will be identified within the next 10 years, and management plans for managing the activities will be developed and implemented. The program will provide an opportunity for a type of recreational experience which has been extremely difficult to achieve. The implementation of a management plan will effectively mitigate the

impacts of activities which are often detrimental to the fisheries habitat and the riparian environment. It will also help eliminate civil conflict presently arising as a result of persons conducting such activities in areas already encumbered by mining claims, and it will allow such activities to be carried out legally.

## Lands

Landline Location: About 90 percent of the Forest's property lines will be surveyed, marked, and posted to Forest Service standard, and will be on a maintenance schedule.

Cost Sharing. All major joint roads will have been identified with Plum Creek Timber Company and the Longview Fibre Company. Cost sharing on these roads will be completed. New work shared will be limited to reconstruction and occasional short segments of spur road.

Rights-of-Way Acquisition: If no significant changes in landownership occur, purchase of road and trail easements will still be in progress at the rate of about four per year.

If the major landowners within the Forest dispose of significant portions of their holdings, and these become small ownerships, the number of easements needed to provide adequate public and administrative access will multiply.

Purchases: The need for acquisitions within the Chelan, Lake Wenatchee, and Icicle Composites will continue. The purchase of the land in fee and the purchase of partial interests, such as scenic easements, which meet both the private and public needs, will both occur.

Land Exchange: All current land exchanges will have been completed.

The final phase of the program with the Washington State, Department of Natural Resources, will be nearing completion.

Further exchange with the Longview Fibre Company will be to "clean-up" any remnant of the two ongoing exchanges or to meet some site specific public need.

#### DESIRED FUTURE CONDITION

Small, site specific exchanges, involving areas where public and private needs coincide will continue with BN Inc. and other land owners.

Mixed Ownership Land Management: The current changes in the ownership and use of intermingled private lands will be much advanced and ongoing. Much of the larger ownerships within and adjacent to the Forest will be broken down into small (1-20 acre) ownerships. Uses will have changed from farm/ranch and timberland to primary and recreation residence or other types of recreation development. This change of land use will probably include those Plum Creek Timber Company and Longview Fibre Company lands which have highest and best use other than growing commercial timber crops. Their continued ownership and timber management efforts can be expected to be limited to those lands best suited to timber production.

The impacts of the "urban-wildland interface" will have multiplied. The Forest will be increasingly impacted by the fire, water, traffic, and pollution impacts of the thousands of small landowner neighbors. Close coordination with county road and planning departments will be a major factor in National Forest management.

These neighbors will be extremely sensitive to the management of the National Forest lands around them. Areas of particular sensitivity will be timber harvest, visual quality, road management, and soil and water quality.

Interchange: There is an existing proposal for public domain lands managed by the Bureau of Land Management in the State of Washington to transfer to National Forest management early in the 10 year period. If this becomes a reality, these lands should be completely incorporated into the National Forest system by the end of the 10 year period. Ideally, the Forest Service will also take over the management of the mineral resources on both the transferred lands and the existing National Forest lands.

Utility Corridors: It is anticipated that the existing corridors will meet regional needs through the next 10 years. The carrying capacity of these existing corridors will be increased. The proposed corridor, which will utilize a "window" in the

Sheets Pass to Pyramid Pass area, will not be needed during this period.

Small Hydroelectric Development. Two or three of the existing proposed developments will be completed. These will probably all be "retrofits" of existing water storage projects. The most likely candidates are the Tieton and Clear Lake projects and one of the Keechelus/Kachess/Cle Elum projects.

Asset Management Programs: Within the first 10 year period, the Forest will be asked to identify saleable parcels of National Forest land. The study will focus on small, isolated parcels of land, difficult to manage and not well suited to National Forest management. Before the end of the 10 year period, the study will be completed and sale of surplus parcels will have begun.

Encroachment and Title Claims: The current cases requiring litigation will be resolved. The current backlog of cases will be resolved. New cases will be resolved promptly using a variety of methods, depending on the circumstances of each case.

#### Roads

The level of road building activity will be comparable to the current level of approximately 80 miles of timber purchaser and 18 miles of arterial and collector road construction and reconstruction.

About the same amount of the Forest will be accessible to passenger cars and high clearance vehicles as today. Most newly constructed roads will be closed.

#### Biodiversity

Biodiversity will be an important issue at the end of the first planning decade. The concepts of preserving biodiversity on National Forest System Lands will be better understood and the establishment of quantitative goals will be possible. The Forest will be actively pursuing the goal of biodiversity maintenance or enhancement. Assessment of biodiversity will be commonplace and

regularly done in project planning. Geographic Information Systems will be on board and heavily used in this assessment process. Efforts will be ongoing to better quantify and classify diversity needs. It will be recognized at the end of the first planning period that land allocation changes will be required to maintain or enhance biodiversity.

## THE FOREST IN FIFTY YEARS

### Recreation

The overall management of the Forest will be strongly influenced by the recreation demands and needs being placed on it as the National Forests, in general, play a much expanded role in the national recreation picture. The economic benefits related to recreation will have considerable influence on Regional and local economics. There will be a wide diversity of both developed and dispersed recreation opportunities as described by the Recreation Opportunity Spectrum Classes. The acres managed in each class may vary depending on changing priorities over 50 years, however, there will be a balance of opportunities based on recreation demand.

Additional developed recreation sites will be added and existing sites expanded to meet growing needs of the public for outdoor recreation. There will be a wide variety in levels of development provided, based on changes in recreation activities and increased sophistication of public desires and expectations.

The PAOT capacity of developed recreation sites will have increased significantly. By the end of the second decade the capacity of Forest recreation sites will increase by 3,300 PAOT. Comparable increases can be expected in the private sector facilities as well.

Recreation use may be expected to be more balanced between winter and summer as the demands for more developed winter recreation opportunities continues to grow.

Dispersed recreation sites and areas will continue to provide the greatest capacity for recreation use of the Forest and play a more significant role in

the recreation program. Visitor use can be expected to reach or approach carrying capacities in many areas in the later decades of the next 50 years. Rationing of use through people-at-one-time quotas, entry permits, controlled entry stations, and reservation systems will likely be much more common. Special programs will have been developed to assist users in obtaining reservations and to help them find a location for the recreation experience the desire. Marketing studies and analysis will be an integral part of recreation planning and management.

Unroaded areas will be more important in the spectrum of recreation opportunities as a result of their gradual decrease in size due to roading for management activities. In the the third, fourth and fifth decades the allocated unroaded areas will remain constant at 298,115 acres.

The Forest will be used by a greater cross-section of the American people and foreign visitors. The biggest increase will likely be in people living in urban centers of large cities as they learn more about their National Forests. The Forest will receive a less proportionate increase in use from local users and will be much more a National resource.

Commercial enterprises and private investment will provide a greater portion of the developed recreation sites and facilities. User fees will continue to be a primary means to support administration and maintenance of recreation sites.

Reservation sites and increasing facilities for group recreation will be developed to improve public service.

New technologies and improved equipment will generate new recreation activities. These in turn will generate a need for more intensive management of people and activities, as well as much more complex administration.

Management actions designed to allow for the greatest mix of activities to occur without conflict will be implemented. These may include: special zoned areas for specific uses; rotation of uses and users on the same site, trail, or within the same area; and more use of assigning where, when, and how long visitors can use the Forest through the

## DESIRED FUTURE CONDITION

issuing of passes, permits, et cetera. Some sites or areas may be "rest rotated" to allow for natural healing or for major maintenance. Vegetation management will be practiced in many sites to provide for the long-term succession of the desired vegetation.

Improved transportation systems will enable more distant visitors, both foreign and domestic, to enjoy the Forest's varied offerings. Perhaps these visits will be part of tour packages designed to sample a broad spectrum of experiences across the country over a relatively short period of time. "State of the art" high-tech monitoring devices will be in place to aid in data gathering, surveillance, control, and management of many resources including recreation activities.

### Wilderness

The acreage of designated Wilderness will likely be the same, or very similar to the current designation. Some potential additions or declassifications are possible depending on changing priorities or demands for Forest resources.

Increasing levels of visitor use in most accessible areas will necessitate greater restriction of visitor activities. Most Wildernesses will be under permit systems or some other means to strictly control numbers of people in each Wilderness at one time. The exact carrying capacities will fluctuate over time based on users ability to practice low impact techniques. Changes in Wilderness resource conditions will be stable to improving as a result of education programs, regulation and restriction of visitor use, and biological resource rehabilitation.

Forest Wildernesses will continue to provide a wide variety of recreation activities and opportunities compatible with management of Wilderness.

Fire will return to its natural role in Wilderness ecosystems through management of prescribed fire and the gradual deterioration of natural fuel accumulations. Perhaps only fires that threaten life, property, or resources outside of Wilderness will be suppressed.

### Cultural Resources

The future of the cultural resource program 50 years from now is difficult to project. Within the second decade, it is likely that all suitable timber lands will have been surveyed for cultural resources. As mentioned in the 10 year projection, about 25 percent of these acres will require further investigation--additional surveys, project monitoring, or subsurface testing. These efforts are likely to locate sites that were not identified in the initial survey efforts. Furthermore, an additional 50 years of history will have augmented what is currently recognized as the cultural resource base with a number of new historic sites and structures. This may require reevaluation of some lands and modification of proposed project plans.

Whereas site avoidance was more easily practiced in the first harvest entries, successive entries in areas of known cultural resources may require more extensive mitigation measures than were needed in the first decade. By the end of the fifth decade, the number of non-significant sites initially identified will have decreased due to project impacts, after adequate documentation has taken place.

Provided funding is available, a systematic inventory will have extended beyond those lands suitable for timber harvest, ideally covering an additional 600,000 acres of backcountry and wilderness. Knowledge of site types and distributions will be greatly enhanced. The Forest will be closely linked with the rest of Washington State in cultural resource management through coordination of its program with the Washington State Historic Preservation Plan. Emphasis will be on thematic, geographic, and/or chronological groupings of sites, so that individual sites can be assessed and managed within the appropriate historic context. This context will have State-wide perspective, and will be the result of long-term coordination with other Forests, agencies, and institutions in the State, as well as with the Washington State Office of Archaeology and Historic Preservation.

The backlog of sites on the Forest requiring adequate documentation will be completed. The SI-2 prescription may cover as many as 7,300

acres of cultural sites on the Forest (depending upon the amount of area needed to preserve and enhance cultural values). Management plans will be completed on all National Register eligible sites that are known today and, with the help of interested volunteer groups, there will be some interpretation of these sites.

Some areas of the Forest (particularly the south end) will continue to be of special concern to the American Indian community. Expanding development and pressures on the Reservation may encourage increased Indian use of the Forest lands and resources for traditional subsistence and religious purposes. Unless there is Congressional action to the contrary, treaty rights will remain paramount. By the end of the fifth decade, those geographic localities and resources of special concern and interest should be clearly defined and understood. There should be a smooth process for coordination with the Indian groups, an understanding of their heritage values, and a reflection of this in the implementation of management practices on the ground. There may continue to be some areas of disagreement where compromise will be necessary. Depending upon the management practices carried out on intermingled private land on the south end of the Forest, some adjustment in land management allocations may be necessary.

Fifty years of studying, reflecting upon, and managing the cultural resources of the Forest should greatly enhance our awareness of the human dimension within the forested environment. It may contribute to an appreciation of our own unique history as a land managing agency. And on a larger scale, it will make an inestimable contribution to the story of human development through time and across the diverse geographic spaces of the Cascade Mountains.

### Scenery

The maintenance, enhancement, rehabilitation, and perpetuation of scenic qualities through visual resource management in key areas will continue.

Most existing, natural appearing landscapes in recreation sites and recreation viewsheds will be protected through careful management. The managed appearance will retain a high degree of naturalness with a wide variety of vegetative composition. Some areas will appear relatively unchanged. A variety of small openings, areas of shelterwood timber harvest, clumps, and individual large trees intermixed with smaller ones will be blended with the unmanaged vegetation. A two story or multi-level appearance will be characteristic of timber stands in areas where harvest has previously occurred.

The Forest will begin to change from the dense natural wild condition to a variety of stand densities. Large mature trees will be accentuated along scenic viewsheds and travel routes. A variety of age classes, species, and multi-level stand compositions will be evident. These managed tree compositions with associated understory vegetation will be very pleasing visually. Mosaic patterns of texture, line, color, and form changes will be interspersed throughout the existing textural patterns. Viewsheds within areas of intermingled ownership will be more visually appealing as these areas become forested with young trees.

Non-timbered areas will remain basically unchanged in appearance. Where forest and natural openings are intermingled, the general visual character as viewed from a distance will be similar to today.

The general appearance of the rest of the managed forest outside important viewsheds will be a mosaic of cutting patterns of varying size, shape, and arrangement. This area will have the appearance of an intensively managed, smaller diameter, renewed young forest.

### Wildlife and Sensitive Plants

Bald eagle nests are expected to increase to 8 or 9 sites on the Forest in 50 years. Roost sites will be located and protected, and feeding areas managed for the eagles. Bald eagle sightings will be common due to increased habitat and increases in fish and waterfowl numbers from habitat improvements.

Peregrine falcon sightings will not be unusual and one to three nest sites may be active on the Forest.

Sensitive plants and animals will have Species Management Guides. This direction should reduce conflicts and reduce threats to these species. Most sensitive plants have been located. All known sites are mapped and are entered on the Forest Geographic Information System. The Wenatchee National Forest is recognized for the high number of unusual plant species existing on the Forest. Recreationists will be able to visit some of the sensitive species sites and enjoy knowing these species are being maintained or increased in population.

The habitat carrying capacity for deer and elk will decrease slightly from 1989. Changes will be due to management prescription for winter range, habitat improvements, and sensitivity of activities to spring and summer habitat. Hunting opportunities will have increased but quality of the hunt may decrease.

Old growth habitat will have decreased to near its lowest levels for ponderosa pine, Douglas-fir, and grand fir. Spotted owl numbers will decrease to the level that will be maintained in the future. From research and monitoring of the old growth habitat, most people will be confident that species dependent upon old growth will be here for another few hundred years. Means of viewing these species will be highly developed and many recreationists will visit the Forest to see spotted owls and the species dependent upon old growth.

Primary cavity excavator habitat will be at its lowest level or already beginning to increase in Forest-wide amounts. Habitat will be well distributed. Forest visitors will be able to enjoy seeing and hearing this group of species no matter where they go on the Forest. Recreation developments such as trails, blinds, and viewpoints will have provided an abundance of opportunity for viewing.

Forest-wide standards and guidelines provide for maintaining habitat for mountain goats. Seventy-five percent of the mountain goat habitat is in wilderness and the populations there will either maintain or decrease slightly as activities increase. The other 25 percent of the habitat will have increased activities. This will decrease populations, but habitat improvements will offset losses of habitat. This direction will limit conflict and allow for at least maintaining the mountain goat populations. If populations suffer from unanticipated problems, additional goats can be reintroduced to maintain populations.

Old growth and mature habitat will be abundant in wilderness and roadless areas. The roaded part of the Forest will have islands that are interconnected into a network that maintains distribution and species viability. These islands will stand out when viewed from high points or airplanes. They will enhance the diversity of vegetation and texture seen. Some recreation development may have been done to allow enjoyment of these areas by wildlife watchers.

Trapping of furbearers will have declined due to public pressure, but viewing of these species will have increased. Some species will be low in numbers but not near to being listed as sensitive.

Grouse management will be advanced and high numbers are anticipated. Long hunting seasons and viewing opportunities will be common. Habitat manipulation and improvements will be common. Demand will, at some point, exceed potential to produce these species.

Limited habitats such as ponds, caves, and cliffs will have intensive management plans that call for maximum recreational use and high populations of wildlife in their natural setting. Tours will be in high demand and population viability will not be threatened.

Owl and hawk nests will mostly be known and managed. Sightings of owls and hawks will be common due to design of timber sales, roads, trails, and habitat improvements.

### Old Growth

It is estimated that by the end of the fifth decade there will be 261,200 acres of old growth remaining on the Wenatchee. In the next fifty years there should also be some ingrowth that will increase the actual acres of old growth on the Forest above this amount. By that time there will be a good understanding of the old growth ecosystems and their role in maintaining such things as long-term forest productivity and biological diversity. The rate of ingrowth of natural stands to an old growth condition will have been quantified (Currently none of the estimates of old growth remaining on the Forest have included ingrowth). Changes in standards and guidelines to reflect increased knowledge of old growth will assure that biological diversity, aesthetics and wildlife and plant habitat that the old growth ecosystems provide will be maintained.

### Fisheries

Fifty years from now, demand for both anadromous and resident fish and fishing opportunities will remain high. Fish production goals established fifty years ago will have been met. Actual production levels will depend upon society's demand for various resources including irrigation, timber, recreation and power. The state of technology for fish and fish habitat management has advanced greatly since the 1980's providing managers with improved predictive ability when considering trade-offs between resources. Due to continued high demand for fish and good water quality, riparian areas will be in conditions which will provide habitat for fish production goals. Desired fish and riparian habitat conditions will be well described. The Forest will be in a mode of monitoring past and present actions. There will have been numerous refinements in management practices and prescriptions based upon monitoring and research. Habitat improvement projects will continue into the future and the Forest will be rebuilding and maintaining structures constructed in this time period.

### Riparian Areas

By the end of the fifth decade, riparian management objectives for sub-drainages on the Forest will be highly refined. The trends established during the first decade in regards to inventory, monitoring and refinement of management techniques will have continued, resulting in the maintenance of excellent water quality and provision of diverse, high quality riparian habitat. This habitat condition will maximize the production potential of riparian dependent species. The desired future condition for the major elements of riparian habitat listed in the "Forest in Ten Years" section will have been achieved, although major improvement in the process and standards used to evaluate this will have been made.

### Vegetation: Trees

One of the biggest changes will be the forested appearance of the large areas denuded by fire in 1970 and 1988 on the Chelan and Entiat Districts. Where wide vistas now occur on these Districts, trees 60 to 80 feet tall will be present. Some limited commercial thinning may be taking place where economics and technology permit.

Almost all stands suitable for timber harvest will have some level of harvest. An estimated additional 348,000 acres will have been changed from wild to managed stand conditions. This is 73 percent of the existing suitable mature and two-storied stands. See Table IV-1 for a listing of harvest acres by watershed.

Reforestation seed will be primarily from select trees that have shown disease resistance, and better form and growth qualities.

Average tree growth rates will be increased, with much less defective down woody debris being available for fuelwood gathering. Wildfire potential and damage will be greatly reduced in roaded areas. Accumulations will continue to build in unmanaged areas with some presently large open areas in wilderness completely overgrown with trees.

Some new openings created by wildfires may be present especially in unroaded recreation and wilderness areas.

**Vegetation: Forage**

By the end of the 50 year planning horizon, most of the 200,000 acres of suitable livestock range within allotments will be under some form of grazing management. Resource managers will be using livestock as a tool to manage the vegetative resource. Analysis of allotments will be ongoing with about 10 percent of the existing allotments reanalyzed annually.

Over 85 percent of the suitable livestock range will be in an improved forage condition with an upward trend in ground cover and species composition. These improved forage conditions will contribute to the protection of soils and watersheds. Not all of the suitable livestock range will be used each year. On key big game range for example, livestock will be used only to maintain the already improved big game forage, or occasionally to utilize forage in excess of game needs. Forage production on the Forest will still exceed the amount needed for big game and livestock, even though the numbers of big game and livestock using the Forest have increased each decade.

Permanent range improvements will still be installed and maintained. However, many fences and water developments will utilize materials which can be easily moved from one location to another. These temporary improvements will allow managers more flexibility in treating site specific areas, such as riparian zones and forage areas created through timber harvest.

**Vegetation: Research Natural Areas**

A viable network of Research Natural Areas (RNA) will exist on the forest and will be used to meet the goals listed in the Forest Service Manual. Additionally, RNA's will be used for monitoring change in commonly harvested natural plant associations, and will be recognized for fulfilling part of the needs for biodiversity.

**Water**

Within five decades, water-related issues will have become a dominant factor in Forest management. Upland water quality and riparian area condition will be major issues due to many factors, including the levels of recreational use along Forest streams, lakes, and rivers. Increased demands for quality fish habitat will place great emphasis on watershed protection and maintenance of minimum flows. Although irrigation demands will probably be about the same as they were in 1988, there will be a conversion from commercial orchards toward urban use. The overall demand for water for human use will increase, and adjudication of the water rights on nearly every major drainage on the Forest is expected.

Fifty years from now, watershed conditions on National Forest System Lands should be improved over current conditions. The factors promoting this improvement will be much the same as indicated for the first decade, although the effect of the factors over time will increase as a greater emphasis is placed on watershed resources. Management standards and guidelines will have changed significantly to satisfy refinements in State and Federal water quality standards and other environmental regulation.

By the end of the fifth decade, several revisions of the water and other resource inventories will have been completed over the entire Forest. Resource information of a much greater quality will be available for use in making management decisions. Feedback from the Forest monitoring program will have resulted in numerous refinements in management practices and prescriptions. The backlog of watershed improvement projects will have been eliminated, and newly identified improvement needs will be treated. Water rights adjudication will have been completed on many of the major watersheds on the Forest. The identification of instream flow needs for channel maintenance, fish habitat, and other purposes will have received much greater emphasis than in the past. Coordination of management activities with other resources and management entities will receive greater emphasis.

**TABLE IV-1**  
**ACRES AND PERCENTAGES OF LAND ALLOCATIONS BY WATERSHED 1/**

Watershed	Total Acres (Gross)	Private		Wilderness		Intensive Harvest		Other Harvest		Non Harvest	
		Acres	%	Acres (Net)	%	Acres	%	Acres	%	Acres	%
Stehekin River	91,097	0	0	91,097	100	0	0	0	0	0	0
Lake Chelan	285,079	7,462	3	110,517	39	40,747	14	52,258	18	74,095	26
Entiat River	174,202	9,095	5	25,398	15	34,556	20	55,799	32	49,354	28
Chiwawa River	119,188	4,918	4	37,652	32	20,861	17	21,264	18	34,493	29
White, Little Wenatchee R	173,354	5,745	3	105,407	61	11,003	6	28,599	17	22,600	13
Nason Creek	68,752	14,904	22	19,335	28	64	0	22,324	32	12,125	18
Wenatchee River	160,676	45,771	29	30,337	19	23,129	14	48,317	30	13,122	8
Mad River	61,035	5,851	10	0	-	29,214	48	12,084	20	13,886	22
Icicle Creek	135,236	16,939	13	100,701	74	0	0	6,551	5	11,045	8
Cle Elum River	126,650	24,762	20	56,393	44	2,650	2	19,631	16	23,214	18
Yakima River	128,282	51,962	40	14,056	11	8,671	7	34,491	27	19,102	15
Teanaway River	78,420	14,840	19	0		2,862	4	10,982	14	49,736	63
Peshastin Creek	78,992	14,459	18	23,129	29	8,798	11	24,995	32	7,611	10
Mission Creek	40,959	3,201	8	0	0	11,088	27	15,964	39	10,706	26
Columbia R Minor Tribs.	44,245	7,081	16	0	0	5,152	12	29,426	66	2,586	6
Swauk- Naneum Creeks	81,748	8,183	10	0	0	13,568	17	40,810	50	19,187	23
Taneum- Manastash Creeks	54,485	19,038	35	0	0	5,088	9	14,925	28	15,434	28
Little Naches River	94,023	11,151	12	22,112	23	33,094	35	21,243	23	6,423	7
American River	50,838	212	1	39,708	78	85	0	2,141	4	8,692	17
Bumping River	71,529	148	0	53,743	75	636	1	14,395	20	2,607	4
Minor Naches River Tribs	74,413	8,353	11	0	0	36,062	48	22,833	31	7,165	10
Wenas Creek	11,109	3,010	27	0	0	6,190	56	1,378	12	530	5
Rattlesnake Creek	75,430	0	0	48,972	65	13,950	19	9,370	12	3,138	4
Upper Tieton River	122,347	6,551	6	52,937	43	18,571	15	30,825	25	13,463	11
Lower Tieton River	55,290	9,964	18	6,296	11	10,006	18	27,306	50	1,718	3

1/ See FEIS, Appendix F for explanation of headings

## DESIRED FUTURE CONDITION

Watershed conditions in the region fifty years from now will be determined by the net result of management activities on all ownerships. Public interest will have fueled major efforts in coordinated resource management planning. Watersheds in which these efforts were successful will be characterized by some level of multiple use output on all ownerships. Watersheds in which efforts at coordinated management planning were less successful may be subject to much more heavily constrained outputs on some or all ownerships. See Table IV-1 for a listing of the acreages and percentages of land allocations in the 25 Forest watersheds.

### Soil

By the end of the 50 year planning horizon, there will be less soil erosion and less delivered sediment entering the streams, lakes, rivers, and reservoirs, because the Best Management Practices (B.M.P.'s), along with the Forest Wide Standards & Guidelines are being closely followed. Both the B.M.P.'s and the Forest Wide Standards and Guidelines will have been revised and fine tuned to the point that soil degradation is well within commonly accepted levels. Maintaining or enhancing soil productivity will be an important issue in most land management decisions.

There will be increased emphasis on soil productivity, so the Forest will be requiring the use of timber harvest systems and techniques that minimize soil degradation. Land managers will be familiar with the location and extent of the more productive soils, so that they can take full advantage of intensive forest management practices on those soils. (ie. thinning, fertilizing, etc.).

By the end of this period, there will be more detailed soil information available (higher order soil survey information, more laboratory data, and more flexibility for developing site-specific interpretations for the land managers). The availability of this kind of information will be very important, because the land managers will probably be under more pressure to protect the environment, particularly water quality and soil productivity.

The Forest Soil Scientist will be using the GIS data management system for developing interpretative information for the Forest Land Managers.

Research and Forest personnel will be periodically monitoring the selected long-term productivity sites on the Forest. The fifty year results of this monitoring will not (according to researchers) be a long enough period of time to obtain any significant results. In fact, because of the importance of this issue for management, it may well be that there will be some additional soils added to this study.

### Air

Continued monitoring and enforcement of National, State, and Local regulations will show a significant improvement of the Air Quality Related Values above the base level. Research into Air Quality problems will be at a high level.

Burning forest residues on-site will probably be done only in special cases. Specialized markets for forest residues will probably be created that will end up being the preferred use for this material. Also, burning constraints will probably be imposed on homeowners that will make wood stoves and fireplaces much more expensive and less desirable to use.

### Minerals

Locatable minerals. The supply/demand situation will have changed considerably, accompanied by a number of technological improvements in mining, recovery, and reclamation methods. As a consequence, more locatable mineral-related activities can be expected. The Forest will have completed an up-to-date mineral resource inventory, and will have established good communication with those interested in mining on the Forest. As a result, the Forest will have a thorough knowledge of what, when, and where mineral activities will occur, and will be in a position to pro-actively manage for these activities. Successful reclamation techniques will have been identified. There will be no undue or unnecessary degradation of the environment caused by mining; the adverse impacts caused by these activities will be short-term; and mineral activities will have been ac-

cepted by the public in general as a land use that is not only necessary, but totally compatible with other resource uses.

Leasable minerals: We will have returned to an energy shortage situation, and will be in the process of developing marginal or newly discovered oil and gas resources as well as alternative sources of energy such as coal and geothermal. Those areas having a high potential for development will have been identified, and full-scale development of the resource will proceed in a manner consistent with this plan.

Common variety minerals: The Forest will intensify its materials resource inventories in areas where mineral materials are scarce. Resources critical to the Forest Service road construction and maintenance activities, critical to other public works projects, and necessary to meet anticipated demand by the public sector will have been identified and reserved for future use.

Withdrawals: All withdrawals will be periodically reviewed at 5 to 20 year intervals. The review will consider any new land management regulations which would provide adequate protection, as well as any new mineral resource information (exploration data, economic data, supply/demand data, etc.). All unnecessary withdrawals will have been eliminated.

Recreational panning, sluicing, dredging and rockhounding. The demand for recreational panning, sluicing, dredging and rockhounding activities will continue to grow. However, our ability to provide for the demand may not increase because the areas where such activity can be conducted are limited by the occurrence of mineral resources and the legal status of lands. The management plans implemented for this activity will have been in place and any problems with the management of the activity will have been resolved. As a result, we will be able to better serve the public who has an interest in conducting these activities.

## Lands

Landline Location: All needed property lines will be surveyed, marked, and posted to Forest Service standard. Maintenance will be ongoing under a maintenance plan and will be current. Where needed, wilderness and other designated area boundaries will also be surveyed, marked, and posted, and on an adequate maintenance schedule.

Cost Sharing: Activity will be limited to reconstruction and maintenance of jointly used roads.

Right-of-Way Acquisition: All necessary road and trail right-of-ways will have been acquired.

Purchase: Purchases will be limited to infrequent, small, site specific needs--usually to facilitate a special need or project requirement.

Land Exchange: Land ownership adjustments via exchange will be completed except for infrequent, small, site specific cases needed for the same purposes as Purchase, above.

Mixed Ownership Land Management: This situation will have stabilized. The Forest's working relationship with neighboring landowners, and local and State agencies, will be well-defined and ongoing.

Interchange: Land transfers with other Federal agencies will be completed. Questions of management authorities and direction will have been resolved.

Utility Corridor: Existing corridors will have been developed to capacity. The proposed corridor will have been developed and will be in use.

Small Hydroelectric Development: All viable small hydroelectric sites will have been developed. Output from these sites will be ongoing.

Asset Management Programs: Land ownership adjustments via this program will be complete before the fifth 10 year program.

Encroachment And Title Claims There will be very little activity in this area by the fifth 10 year period. It will probably be limited to an occasional exchange of a quitclaim deed to remove a cloud on the title of either a National Forest parcel or an adjacent private land parcel.

## Roads

The road system should be completed and under management. Only an occasional short road will need to be constructed for managing the surface resources.

Access may still need to be granted to utilize mineral resources.

The level of residential development within and adjacent to the Forest will have progressed to the point that county agencies will manage a portion of the current Forest road system to provide for mail, school, commercial, and other public road uses.

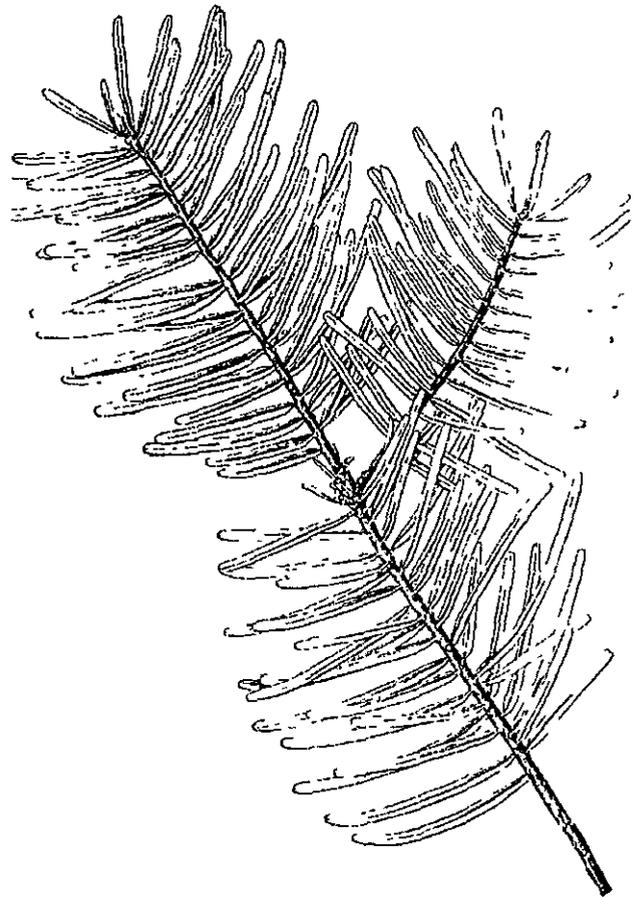
## Biodiversity

Biodiversity will be recognized as a very critical issue in National Forest System Lands management. The interrelationships of biodiversity and subordinate issues such as forest fragmentation, old growth, long-term productivity, rare plant conservation and flow of genetic material will be understood and applied in forest planning and management. A classification and inventory system will be well developed and heavily used as tools to assure maintenance of biodiversity. The Wenatchee National Forest will be recognized for its role in maintaining the animal and plants found there and the communities in which they are a part.

## D. FOREST MANAGEMENT OBJECTIVES

The annual levels of goods and services are estimates of what may be produced from the Forest when this plan is implemented, are summarized in Table IV-2. These outputs and activities are resource management objectives for the Forest. Table IV-2 also contains the annual funding levels necessary to meet the proposed outputs and activities. If final budgets are significantly different than those contained in the table, the final outputs of goods and services will vary according to the funding level.

A narrative description by resource follows the Table summaries.



**TABLE IV-2  
RESOURCE OUTPUTS AND ACTIVITY SUMMARIES**

	UNITS	DECADE				
		Decade 1	Decade 2	Decade 3	Decade 4	Decade 5
<b><u>Developed Recreation Use</u></b>						
	M RVD's /yr	3,140.9	3,449.3	3,848.7	4,248.1	4,647.5
Developed Site Construction or Reconstruction	PAOT	721	100	100	200	300
<b><u>Non-Wilderness Dispersed Recreation Use</u></b>						
Roaded	M RVD's/yr	1,977.8	2,125.9	2,294.0	2,462.1	2,630.2
Unroaded Motorized	M RVD's/yr	278.6	300.6	335.4	370.2	405.0
Unroaded Non-Motorized	M RVD's/yr	98.6	105.7	118.0	130.2	142.7
<b><u>Acres Remaining In Unroaded Areas</u></b>						
	M Acres	387.8	298.1	298.1	298.1	298.1
<b><u>Trail Construction and Reconstruction</u></b>						
	Miles	81.6	81.6	44.0	44.0	44.0
<b><u>Wild &amp; Scenic Rivers Proposed</u></b>						
	Miles					
Wild		←-----82.5----->				
Scenic		←-----29----->				
Recreational		←-----118.5----->				
<b><u>Cultural Resource Management</u></b>						
Inventoried Acres	M Acres/Dec.	400	352	270	190	102
Site Documentation	Sites/Decade	500	250	200	120	50
Site Evaluations	Sites/Decade	100	150	200	150	100
Testing/Data Recovery	Sites/Decade	5	10	20	10	7
Management Plans	Plans/Decade	5	5	5	5	5
Interpretive Projects	Number/Dec.	13	15	15	15	15
<b><u>Visual Quality Objectives</u></b>						
Preservation	M Acres	←-----843.3----->				
Retention	M Acres	←-----521.8----->				
Partial Retention	M Acres	←-----332.9----->				
Modification	M Acres	←-----147.8----->				
Max Modification	M Acres	←-----318.3----->				
<b><u>Wilderness Use</u></b>						
Acres Managed	M RVD's/yr	423.5	444.7	476.5	508.2	540.2
	M Acres	←-----841.0----->				
<b><u>Wildlife and Fish Use</u></b>						
Wildlife	M WFUD's/yr	753.8	836.5	925.0	965.0	1,084.0
Fish	M WFUD's/yr	550.4	732.0	841.0	951.0	1,062.0

**TABLE IV-2 (continued)**  
**RESOURCE OUTPUTS AND ACTIVITY SUMMARIES**

	UNITS	DECADE				
		Decade 1	Decade 2	Decade 3	Decade 4	Decade 5
<b>Anadromous Fish</b>						
Commercial Harvest	M Pounds	328	970	991	1,012	1,033
Habitat Improvement over present	M Pounds	0	33	54	75	96.5
<b>Management Indicator</b>						
<b>Species</b>						
Chinook Salmon						
Spring Chinook	M Adults	6.0	12.2	12.4	12.6	12.8
Summer Chinook	M Adults	2.0	4.7	4.7	4.7	4.7
Sockeye Salmon	M Adults	31.8	40	40	40	40
Summer Steelhead	M Adults	1.7	3.6	3.7	3.7	3.8
Cutthroat Trout	M Adults	203	212	220	229	238
Mule Deer						
Summer	Number	25,100	24,900	24,800	24,600	24,400
Winter	Number	10,100	10,200	10,200	10,300	10,400
Elk						
Summer	Number	12,500	12,400	12,300	12,100	12,100
Winter	Number	5,600	5,700	5,700	5,800	5,800
Mountain Goats	Number	←-----1,600----->				
Beaver	Number	←-----350----->				
Ruffed Grouse	Number	3,200	3,400	3,500	3,700	3,800
Bald Eagle						
Active Nest Sites		4	6	7	9	10
Recovery Nest Sites		←-----8----->				
Peregrine Falcon						
Active Nest Sites		2	3	5	7	10
Recovery Nest Sites		←-----10+----->				
Primary Cavity Excavators	% Potential	73	70	68	65	62
Spotted Owl	Pairs	120	110	105	102	100
Piliated Woodpecker	Pairs	380	355	340	320	300
Marten/ N. 3-Toed Woodpecker	Pairs	1200	1100	1050	950	900
<b>Old-Growth</b>	M Acres	307.3	295.7	284.2	272.7	261.2
<b>Wildlife Habitat Improvement</b>	Acre Equiv. Structures	←-----1,900----->				
		←-----400----->				
<b>Range</b>						
Grazing Capacity	M AUM's	38.7	39.9	40.3	40.9	41.1
Permitted Use	M AUM's	23.0	24.0	24.0	24.0	24.0
Improved Allotments	% upward trend	45	70	78	82	85
Fence Const/Reconst.	Miles Annually	9.0	9.0	8.0	7.0	6.5
Springs Const/Recon.	Number Annually	12	11	10	9	8
Noxious Weed Control	Acres Annually	375	375	100	100	100
Suitable Acres	M Acres	←-----406.9----->				

**TABLE IV-2 (continued)**  
**RESOURCE OUTPUTS AND ACTIVITY SUMMARIES**

		UNITS	DECADE				
			Decade 1	Decade 2	Decade 3	Decade 4	Decade 5
<b>Timber</b>							
Suitable Lands	Acres		<-----630,514----->				
Acres Harvested by:							
Clearcut	Avg. Acres Annually		<-----3,433----->				
Shelterwood	Avg. Acres Annually		<-----2,360----->				
Partial cut	Avg. Acres Annually		<-----2,896----->				
<b>Timber Offered</b>							
ASQ	MM CF/yr		<-----24.3----->				
	MM BF/yr	136	--	--	--	--	
Programmed Quantity	MM CF/yr		<-----26.1----->				
	MM BF/yr	146.0	--	--	--	--	
<b>Long-term Sustained Yield</b>							
	MM CF/yr		<-----27.2----->				
<b>Fuelwood</b>							
	M CF/yr (37 cords=1 M CF)		<-----3,400----->				
<b>Reforestation</b>							
Plant	M Acres	4.3	3.8	1.3	3.6	5.4	
<b>Timber Stand Improvement</b>							
	M Acres	4.2	4.4	1.9	5.5	4.7	
<b>Water Yield</b>							
Background	M Acre Feet		<-----4,455----->				
Increase over background	M Acre Feet	15.5	21.0	21.5	22.7	23.8	
<b>Sediment</b>							
Background	M Tons		<-----930.5----->				
Activity over background	M Tons	72.4	72.4	72.4	40.5	40.5	
<b>Improved Watershed Conditions</b>							
	Treated Acres	1,800	1,000	800	700	500	
<b>Energy Minerals</b>							
	Billion BTU's Produced	0	137	290	415	619	
	Permits, Leases, Plans Processed	35	45	50	55	60	
<b>Area Available Classified Prospectively Valuable For</b>							
Oil and Gas	Acres		<-----205,854----->				
Coal	Acres		<-----425,657----->				
Geothermal	Acres		<-----182,385----->				

**TABLE IV-2 (continued)**  
**RESOURCE OUTPUTS AND ACTIVITY SUMMARIES**

UNITS	DECADE					
	Decade 1	Decade 2	Decade 3	Decade 4	Decade 5	
<b>Non Energy Minerals</b>						
Locatable	% Produced <-----Negligible Decrease (< 0.5%)----->					
	Under 1985 Management					
	Notices of Intent, Plans Processed and Administered					
	100-170	130-180	120-180	130+	130+	
<b>Leasable Minerals</b>						
Program Activity	Leases/Permits Plans of Operation					
	35	35	60	60	60	
Area Available For Leasing						
Oil and Gas	Acres Available <-----205,854----->					
Coal	Acres Available <-----425,657----->					
Geothermal	Acres Available <-----182,385----->					
<b>Area Available for Location</b>						
High Potential	Acres <-----14,204----->					
Moderate Potential	Acres <-----45,538----->					
Low Potential	Acres <-----1,253,377----->					
<b>Common Variety Minerals</b>						
	Tons Produced	90,000	90,000	80,000	70,000	60,000
	Pits assessed for FS use	17	15	10	8	5
	Permits issued	60	75	75+	75+	75+
<b>Property Line Survey</b>	Miles	<-----70----->				
<b>Arterial and Collector Roads</b>						
	Miles					
Construction		20	0	0	0	0
Reconstruction		16	2	2	2	2
<b>Timber Purchaser Roads</b>						
<b>Const. &amp; Reconst.</b>	Miles	83	68	5	5	5
<b>Roads Suitable for Public Use</b>						
Passenger car	Miles	<-----1,031----->				
High Clearance Vehicle	Miles	<-----3,202----->				
Closed (Year-round)	Miles	1,703	<-----2,364----->			
<b>Fire Management</b>						
Fuel Treatment	Acres	6,700	5,800	3,200	6,800	7,800
<b>Social/Economics</b>						
Operational Costs	Million \$	17.2	17.0	17.0	17.0	16.7
Cap Investment Costs	Million \$	11.8	8.4	7.0	6.5	6.1
Total Forest Budget	Million \$	29.0	25.4	24.0	23.5	22.8
Returns to Treasury	Million \$	14.0	15.1	10.4	17.5	14.3
Payments to Counties	Million \$	3.3	3.3	2.1	3.2	2.4
Changes in Income	Million \$	+5.14	<-----Not Estimated----->			
Changes in Jobs	Number	+203	<-----Not Estimated----->			

## ***RESOURCE NARRATIVES***

### **1. RECREATION SETTING**

#### **a. Recreation Opportunity Spectrum**

The goal of the recreationists in visiting the Forest is to obtain satisfying experience and to *meet expectations in recreation activities*. An objective of the Forest Manager is to provide the opportunities for these expectations to be realized. Recreation opportunities can be broken down into three components; activities, the setting, and the experience. The quality of the setting available for the activity plays a key role in the outcome of visitor's expectations.

The Forest has the potential to provide a wide variety of recreation settings. In order to help identify, quantify and describe these settings, the Recreation Opportunity Spectrum (ROS) has *been developed*. The ROS system *arranges the possible combinations of activities, settings, and probable experience opportunities across a continuum or spectrum*. The spectrum ranges from primitive to urban and has the following seven classes:

1. ***Primitive:*** An area characterized by an environment essentially natural and unmodified by human influence and development. Here there is a *high probability of experiencing solitude and isolation from the sights and sounds of human activity*. The area is located at least 3 miles from all roads, railroads and trails with motorized use, and is at least 5,000 acres in size. Few people will be seen or encountered here and regimentation and on-site controls are few.

2. ***Semi-Primitive Non-motorized:*** An area characterized by a predominantly natural or natural appearing environment. Here there is a high probability of experiencing solitude and isolation. The area is located at least 1/2 mile, but not generally further than 3 miles, from all roads, railroads or trails with motorized use. The area is at least 2,500 acres in size. Other people may be seen or encountered in this area, but not frequently. On-site controls and regimentation will be present but subtle.

3. ***Semi-Primitive Motorized:*** An area characterized by a predominantly natural or natural appearing environment. Here there is evidence of other users, but concentrations of users are low. There is a moderate probability of experiencing isolation and solitude. The area is located within 1/2 mile of primitive roads or trails used by motor vehicles, but not closer than 1/2 mile to roads of a higher standard than primitive. The area is at least 2,500 acres in size. Other people will be seen or encountered but not frequently. On-site controls and regimentation will be present but subtle.

4. ***Roaded Natural:*** All area predominantly natural appearing. Vegetation management and resource modifications are present but harmonize with the natural environment. A moderate opportunity exists for isolation and undisturbed activities. The area is located within 1/2 mile of better than primitive roads and railroads. There is a moderate to high probability of contact with other people on roads; low to moderate probability off roads and on trails. On-site regimentation and controls are generally noticeable.

5. ***Roaded Modified:*** An area that is generally natural appearing but has significant vegetation management and resource modification. Modifications generally harmonize with the natural environment. A moderate opportunity exists for isolation and undisturbed activities. The area is located within 1/2 mile of better than primitive roads and railroads. There is a moderate to high probability of contact with other people on roads; low to moderate probability off roads and on trails. On-site regimentation and controls are generally noticeable.

6. ***Rural:*** An area characterized by a substantially modified natural environment. Vegetation management and facility development is dominant. Here there is a moderate to high frequency of contact with other users in developed sites, on roads and trails, and on water surfaces. Many facilities are present to handle groups as well as individual users. Regimentation and managerial controls are numerous; but largely in harmony with the natural environment.

7. Urban: An area characterized by a substantially urbanized environment, although the background areas may have natural appearing elements. Developed sites will have the highest standard of development with many user conveniences. The setting is strongly structure dominated. Large numbers of users will be present on site and in nearby areas. Regimentation and management controls will be obvious and numerous.

**b. Developed Recreation**

The Developed Recreation sites and facilities will be significantly upgraded and improved over the life of this plan. Major emphasis will be placed on:

1. Rehabilitation and reconstruction of developed sites that need extensive repair and refurbishing. Sites with high visitor use will receive highest priority. Sites that currently have user conflicts will also be high priority when redesign and reconstruction can help solve user problems.

2. Improvement in the quality of facilities provided at developed sites and the type of facilities provided. Improvements will be designed to provide a high level of user satisfaction and user preferences will dictate the type of facilities constructed, and what activities are possible at each site.

3. Expansion of existing developed sites where overcrowding of the sites and adjacent areas has resulted in health and sanitation problems, undesirable loss of vegetation and soil compaction and user conflicts.

4. Construction of new sites where recreation area planning indicates sufficient public demand exists and where high quality opportunities are present.

Under this emphasis, most of the popular campgrounds, picnic areas, and interpretive sites on the Forest will be upgraded. Major trailheads will be upgraded with more user facilities. More interpretive sites will be developed. Campgrounds where fees are charged will continue on the fee system. Many of the upgraded facilities will be

added to the fee system (refer to Appendix A for a list of sites planned for rehabilitation, upgrade, or expansion during the next 10 years).

There will be more emphasis on partnerships, cooperative efforts, and joint ventures with other agencies, organizations, clubs, and private businesses in the planning and financing of developed sites. When economically efficient and service effective, more sites will be considered for operation under contract by concessionaires. Maximum opportunities will be sought to expand facilities and services through Challenge Grants, Cooperative Funds, Foundations, and Federal Capital Investment. The use of volunteers will continue to provide a significant benefit to the management of programs.

Ski area expansion is under consideration and in planning stages at Mission Ridge and White Pass. Further expansion will be commensurate with growth of demand for skiing recreation.

Timber sale activities will continue to provide opportunities to expand and improve trails, trailheads, dispersed camping, viewpoints, and parking areas for recreation activities.

Management of other types of developed recreation, organization, and club sites, Recreation Residences, etc., will continue. Any increase in activity or new proposed development will be analyzed in terms of recreation opportunities, recreation user demand, and public service.

**c. Dispersed Recreation**

The dispersed recreation program will receive the same emphasis as the developed recreation program, of establishing partnerships, joint ventures, and cooperative efforts in providing high quality recreation opportunities for Forest visitors.

Dispersed recreation opportunities will be planned to provide potential for a wide diversity of activities for the recreating public. The management of dispersed areas and the construction of facilities to support dispersed recreation activities will conform to the Recreation Opportunity Spectrum class to provide a consistent setting.

Winter sports activities such as snowmobiling, cross-country skiing, snowshoeing, dog sledding, and snowplay will continue to grow in popularity and receive management emphasis. Trail marking, grooming, and track setting will continue to be done in cooperation with the State Parks Division and user groups as well as under permit.

Many dispersed recreation activities will be supported or made possible by cooperators or the private sector, such as recreation organizations, clubs, and commercial outfitter-guides. In activities such as river rafting, fishing, backpacking, hunting, climbing, and ski touring, experienced guides or outfitters will continue to provide these opportunities for the public.

Transportation planning and management will continue to recognize driving for pleasure as a major activity on the Forest Road System. Estimated recreation use and recreation opportunities will receive greater consideration in the construction design and maintenance standards for the road systems. More roads will be located and constructed primarily for recreation management objectives, and more in conformity with Recreation Opportunity Spectrum setting criteria. Appendix A contains a list of proposed recreation road construction projects for the next 10 years.

**d. Trails**

The Forest Trail System will provide a full array of recreation activities and experiences and will provide access to a wide range of destination and focal points of interest. The trail system also will provide access for Forest Administrative actions. There are 2,463 miles of trail on the Forest in Recreation Opportunity Classes from Primitive to Rural. Trail maintenance will be performed on all of the 2,463 miles of trail each year, depending on budget and the availability of volunteers.

Major reconstruction, rerouting, and relocation work is planned on the trail system to provide improved recreation experiences, correct problems with excessive soil erosion and water sedimentation, and to meet recreation opportunity spectrum and wilderness management objectives.

It is expected that about 400 miles of new trail will be constructed by the end of the first decade. About 120 miles of this new construction will allow motorized use and about 280 miles will be constructed for non-motorized users. This will result in a net increase for motorized and non-motorized trails when both the existing trail system and future trails are taken into account. Motorized trails will show a net increase of about 65 miles and non-motorized trails will show a net increase of about 335 miles. Although not mandated by law or required by previous agreement, all trails that have been improved with Inter-agency Committee for Outdoor Recreation funds will remain open to motorized use.

The addition of new winter trails is planned to respond to growing demand for winter sports activities. Many new summer trails will also be added to improve conditions for existing visitor use and solve user conflicts. A list of planned trailheads, sno-parks, and trail projects is included in Appendix A.

Trail project planning and accomplishment will involve partners and cooperators to extend the financial scope of projects and provide greater recreation values.

**e. Special Interest Areas**

Special interest areas will provide places as needed to exhibit some of the unique attributes of the Forest. The Tumwater Botanical area and the Nason Ridge recreation area are two such places.

Formal classification and management plans will be developed for the following areas:

Area Name	Approximate Area	Recommended Classification
<b>Teaway</b>	47,900	Dispersed Recreation
<b>Nason Ridge</b>	10,000	Dispersed Recreation
<b>Annette Lake</b>	1,400	Dispersed Recreation

The establishment of these areas is recommended in the Alpine Lakes Area Management Plan and until formal classification and specific management plans are completed, their management will be directed by that plan.

**2. WILD, SCENIC, AND RECREATIONAL RIVERS**

Formal designation for selected rivers as Wild, Scenic, and/or Recreational will be pursued through implementation of this plan. The river segments listed below were found to be eligible and will be recommended to Congress as candidates for inclusion in the Wild and Scenic River system.

Designation of these rivers will preserve and protect scenery, recreational, geologic, fish, wildlife, historical, cultural, and ecologic resource

values within these stream corridors. The degree of protection will be commensurate with the classification. These rivers have been determined to provide high quality recreation opportunities and exhibit at least one outstandingly remarkable resource value. Recreation activities including water sports, viewing scenery, and camping would be enhanced through these designations. There would also be significant economic benefits generated through increased tourism and recreation visitor use.

**TABLE IV-3**

<b>River</b>	<b>Segment</b>	<b>Recommended Classification</b>	<b>Miles</b>
<b>American</b>	Headwaters to confluence with Rainier Fork	Wild	6.0
	Confluence with Rainier Fork to confluence with Bumping River.	Scenic	16.0
<b>Cle Elum</b>	Headwaters to Alpine Lakes Wilderness boundary	Wild	4.0
	Alpine Lakes wilderness boundary to above Lake Tucquala.	Scenic	2.0
	Above Lake Tucquala to Lake CleElum	Recreational	18.5
<b>Waptus</b>	Headwaters to confluence with Cle Elum River.	Wild	13.0
<b>Icicle</b>	Headwaters to Alpine Lakes Wilderness boundary.	Wild	12.0
	Alpine Lake Wilderness boundary to above Leavenworth city water intake.	Recreational	14.0
<b>Napeequa</b>	Headwaters to Glacier Peak Wilderness boundary.	Wild	15.0
	Glacier Peak wilderness boundary to confluence with White River.	Recreational	1.0
<b>White</b>	Headwaters to Glacier Peak Wilderness boundary	Wild	15.0
	Glacier Peak wilderness boundary to above Tall Timbers Ranch.	Scenic	7.0
	Above Tall Timbers Ranch to Lake Wenatchee.	Recreational	12.0
<b>Chiwawa</b>	Headwaters to Glacier Peak Wilderness boundary.	Wild	5.0
	Glacier Peak wilderness boundary to confluence with Wenatchee River.	Recreational	30.0
<b>Wenatchee</b>	Lake Wenatchee to Wenatchee Forest boundary.	Recreational	28.0
<b>Entiat</b>	Headwaters to Glacier Peak Wilderness boundary.	Wild	12.5
	Glacier Peak Wilderness boundary to Cottonwood Trailhead.	Scenic	4.0
	Cottonwood Trailhead to above the confluence with Burns Creek.	Recreational	15.0

### 3. CULTURAL RESOURCES

There will be close coordination between the cultural resource program and other resource management activities on the Forest throughout all decades. Approximately 400,000 acres of National Forest land (in addition to that already investigated) will be surveyed over the next 10 years in project support (i.e. surveys that precede any ground disturbing activities). Since most of this will be linked with the timber sale program, the annual increments will depend in large part upon the location and total land area included within anticipated timber sale areas. In addition, inventory will extend beyond the lands suitable for timber harvest, covering some 67,500 acres of high sensitivity areas, backcountry and wilderness. Information collected during all of these inventories will be used to refine the cultural resource sampling strategy used on the Forest.

Not all acres examined will be cleared of necessary cultural resource considerations. Approximately 25 percent of these acres will require further investigation due to known site distributions or because of high cultural resource sensitivity. Heavy monitoring emphasis will be given these localities.

The number of acres inventoried for timber support will drop in subsequent decades. By the fifth decade, inventory of all suitable timber lands will have been completed. A small number of inventories will continue in conjunction with Recreation, Minerals and Grazing, and Land Adjustments, and will probably remain at the current level through the second decade. Systematic surveys carried out as part of the cultural resource inventory program (not as project support) will continue to examine approximately 10,000 acres per decade.

In addition to the inventory of sites located during project-related survey, inventories will be prepared to Regional standards for the current backlog of unrecorded or insufficiently recorded cultural resources. The process will add approximately 15 sites per year will be added to the inventory base. This will enable the Forest to complete documentation of all existing properties by the end of the second decade. The resulting data base will contribute to State-wide efforts in

preservation planning, will facilitate the development of appropriate research strategies, will provide the basis for evaluations of significance, and will aid in the formulation of informed management decisions. This data base will allow the land managers to more adequately assess the uniqueness, cultural importance, regional associations, and ultimate worth of any cultural resources existing on the Forest.

As documentation of known sites is completed, site inventories will concentrate on newly discovered sites, resulting in a significant drop in the number of annually recorded sites by the fifth decade.

An assessment of significance is pivotal to management of cultural resources. It will influence the selection of sites meriting further considerations or investigation, as well as the decision as to whether to preserve or ultimately permit alteration or destruction of the resource. Approximately 12 sites per year through the second decade will be formally evaluated as individual properties, as thematic groups, or as historic districts. By the fifth decade, this number will drop, reflecting the decline in the number of sites remaining to be evaluated.

In the case of archaeological sites on the Forest, some test excavations will be necessary to determine the boundaries, depth of deposits, and/or basic nature and condition of the properties. Depending on the results of the testing, data recovery will be carried out on those sites where vandalism, project impacts, or natural degradation are occurring. Approximately five sites per decade may be excavated in consultation with interested American Indian groups, utilizing a professionally sound research design. This number may increase in future decades as avoidance of project impacts becomes less feasible.

Cultural resource management plans will be developed for selected National Register sites and districts on the Forest, in consultation with the Washington State Historical Preservation Office (SHPO). An average of 5 plans per decade will be completed, which will detail the management objectives for the subject properties, the treatment and actions necessary to achieve those objectives, interpretive opportunities, and the

costs involved. Two top priorities in the first decade will be the Stevens Pass Historic District and Salmon La Sac Guard Station.

The ultimate goal of the cultural resource program will be the scholarly use and/or interpretation of appropriate cultural resource properties for the benefit of the public. Forty such projects will be undertaken in the first decade. Additional projects will be added in subsequent decades, while existing interpretive facilities will continue to be maintained and updated. By the end of the fifth decade, there may be over 100 fully interpreted cultural resource properties on the Forest.

#### 4. SCENERY

Visual quality is to be maintained at a high level for all major scenic highway viewsheds, the Alpine Lakes Management Unit, and most major wilderness portals. Maintenance and protection of the scenery of these areas is of high importance on the Forest.

Lands within view of scenic travel routes will be managed under Retention and Partial Retention visual management standards. Visual quality is considered as one of the most important resources to be protected under these land allocations. A total of 854,700 acres are allocated to Retention and Partial Retention Visual Quality Objectives to protect scenery. Of the 630,514 acres suitable for timber management, 364,150 acres will have Retention and Partial Retention Visual Quality Objectives to protect visual quality.

Unnatural landscape patterns will occur in some major viewsheds. These are Cooper Mountain to South Navarre, Shady Pass, Taneum/Manastash/Quartz Mountain, Little Naches, Cash Prairie, Little Rattlesnake, and South Fork Tieton. Landscape settings adjacent to some lakes will be altered by management activities. These are Antilon, McDaniel, and Bear Lakes.

A total of 266,364 acres of General Forest will be managed under Modification and Maximum Modification Visual Quality Objectives. The natural appearance of these lands as viewed from Forest roads would be altered to heavily altered.

Even though alteration of the natural appearance of these lands is permitted, visual management principles are to be applied.

These principles are contained in National Forest Landscape Management, Volumes 1 and 2. Published handbooks within The Visual Management System, include "Utilities", "Range", "Roads", "Timber", "Fire", "Recreation", and "Ski Areas". These handbooks are to be used in managing the visual resource.

Application of the visual management system in wilderness administration is necessary for maintenance of high quality scenery. Construction, rehabilitation, or reconstruction of trails or campsites require application of the Visual Absorption Capacity concept to protect and maintain scenic values.

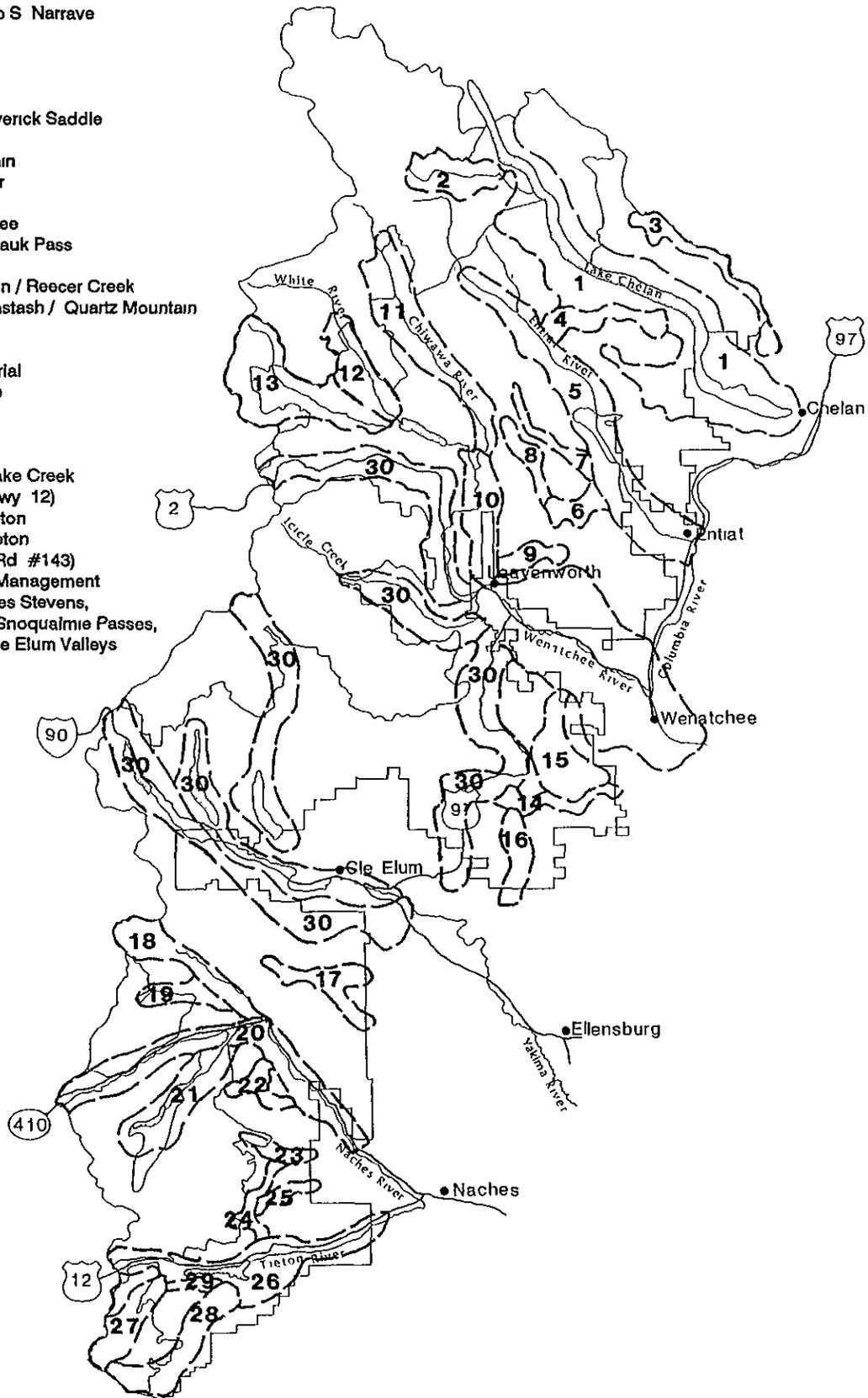
The visual management system is to be used in all resource programs to maintain high levels of scenic quality. Past applications of the system on the Forest have provided high quality end results when landscape architectural design concepts and visual management principles are applied during the Environmental Analysis stages of project design. Continued integration of visual concerns into project management is necessary to enhance and retain high visual quality. National Forest Landscape Management Handbooks are available as users guides in management of the visual resource and should be consulted. The Swauk and Entiat viewshed plans are available to provide further direction for management of the visual resource in those areas. Other viewshed plans are to be done during the next decade.

With the proper application of visual management direction set forth in the Management Prescriptions, Standards and Guidelines, and handbooks, the predicted visual appearance of inventoried viewsheds is as indicated on the following tables. A location map is also provided for their identification.

Monitoring will be conducted to ensure that the predicted conditions are being met.

**FIGURE IV-1  
INVENTORIED VIEWSHEDS AND LOCATIONS**

1. Lake Chelan
2. Railroad Creek
3. Cooper Mtn to S Narrave
4. Shady Pass
5. Entiat Valley
6. French Corral
7. Mad River
8. Sugarloaf-Maverick Saddle
9. Eagle Creek
10. Chumstick-Plain
11. Chiwawa River
12. White River
13. Little Wenatchee
14. Beehive to Swauk Pass
15. Mission Creek
16. Table Mountain / Reecer Creek
17. Taneum-Manastash / Quartz Mountain
18. Little Naches
19. Ravensroost
20. Mather Memorial
21. Bumping Lake
22. Little Bald
23. Rattlesnake
24. Cash Prairie
25. Little Rattlesnake Creek
26. White Pass (Hwy 12)
27. North Fork Tieton
28. South Fork Tieton
29. Tieton Road (Rd #143)
30. Alpine Lakes Management Plan (includes Stevens, Swauk and Snoqualmie Passes, Icicle and Cle Elum Valleys)



**TABLE IV-4  
VISUAL CONDITION OF VIEWSHEDS**

Present Inventories			Visual Quality Objectives			
No.	Viewshed or Travel Routes	Existing Visual Condition	Alternative C	Foreground	Middleground	Approx. Acres
1	Lake Chelan	Natural Appearing	Natural Appearing	Retention	Partial Retention	84,800
2	Railroad Creek	Natural Appearing	Natural Appearing	Retention	Preservation	14,600
3	Cooper Mtn. to S Narrave	Altered	Altered	Modification	Modification	3,300
4	Shady Pass	Natural Appearing	Altered	Partial Retention	Partial Retention	18,800
5	Entiat Valley	Natural Appearing	Slightly Altered	Retention	Partial Retention	73,300
6	French Corral	Altered	Slightly Altered	Partial Retention	Modification	3,800
7	Mad River	Natural Appearing	Slightly Altered	Retention	Not Seen	15,700
8	Sugarloaf-Maverick Saddle	Slightly Altered	Slightly Altered	Partial Retention	Not Seen	4,700
9	Eagle Creek	Slightly Altered	Slightly Altered	Retention	Modification	5,600
10	Chumstick-Plain Rd. 209	Natural Appearing	Slightly Altered	Partial Retention	Modification	26,600
11	Chiwawa River	Natural Appearing	Natural Appearing	Retention	Partial Retention	59,200
12	White River	Slightly Altered	Natural Appearing	Retention	Partial Retention	20,200
13	Little Wenatchee	Slightly Altered	Slightly Altered	Retention	Modification	28,500
14	Beehive to Swauk Pass	Natural Appearing	Slightly Altered	Partial Retention	Modification	6,900
15	Mission Creek	Natural Appearing	Slightly Altered	Modification	Modification	6,400
16	Table Mountain Reecer Creek	Slightly Altered	Natural Appearing	Retention	Partial Retention	9,600
17	Taneum-Manastash Quartz Mountain	Slightly Altered	Altered	Partial Retention	Modification	12,000
18	Little Naches	Slightly Altered	Altered	Partial Retention	Modification	6,900
19	Ravens Roost	Slightly Altered	Slightly Altered	Partial Retention	Modification	5,500

**TABLE IV-4 (continued)  
VISUAL CONDITION OF VIEWSHEDS**

Present Inventories			Visual Quality Objectives			
No.	Viewshed or Travel Routes	Existing Visual Condition	Alternative C	Foreground	Middleground	Approx. Acres
20	Mather Memorial (Hwy-410)	Natural Appearing	Natural Appearing	Retention	Retention	22,500
21	Bumping Lakes	Natural Appearing	Natural Appearing	Retention	Preservation	22,200
22	Little Bald	Altered	Slightly Altered	Partial Retention	Modification	2,000
23	Rattlesnake Creek	Slightly Altered	Slightly Altered	Partial Retention	Modification	4,300
24	Cash Prairie	Slightly Altered	Altered	Partial Retention	Modification	4,500
25	Little Rattle-snake Creek	Slightly Altered	Altered	Modification	Modification	2,300
26	White Pass (Hwy-12)	Natural Appearing	Natural Appearing	Retention	Partial Retention	53,900
27	North Fork Tieton	Altered	Slightly Altered	Partial Retention	Partial Retention	12,200
28	South Fork Tieton	Slightly Altered	Altered	Partial Retention	Modification	8,500
29	Tieton Road	Natural Appearing	Natural Appearing	Retention	Not Seen	6,400
30	*Stevens Pass (Hwy-2)	Altered	Slightly Altered	Retention	Partial Retention	50,600
31	*Swauk Pass (Hwy-97)	Slightly Altered	Slightly Altered	Retention	Partial Retention	31,100
32	*Snoqualmie Pass	Heavily Altered	Altered	Retention	Partial Retention	21,500
33	*Icicle Valley	Altered	Slightly Altered	Retention	Partial Retention	18,300
34	*Cle Elum Valley	Slightly Altered	Slightly Altered	Retention	Partial Retention	31,500

\* Visual alterations due to land ownership patterns and other land uses

**TABLE IV-4 (continued)**  
**VISUAL CONDITION OF LAKES**

<b>Present Inventories</b>		<b>Visual Quality Objectives</b>		
<b>Lakes and Surrounding Landscape</b>	<b>Existing Visual Condition</b>	<b>Alternative C</b>	<b>Foreground</b>	<b>Middleground</b>
Antilon Lake	Altered	Altered	Modification	Not Seen
Domke Lake	Natural Appearing	Natural Appearing	Retention	Preservation
Fish Lake	Slightly Altered	Natural Appearing	Retention	Modification
Lake Wenatchee	Natural Appearing	Natural Appearing	Retention	Partial Retention
Beehive	Altered	Slightly Altered	Partial Retention	Not Seen
Manastash Lake	Natural Appearing	Natural Appearing	Retention	Not Seen
Bumping Lake	Natural Appearing	Natural Appearing	Retention	Preservation
Granite Lake	Natural Appearing	Slightly Altered	Partial Retention	Not Seen
Leech Lake	Slightly Altered	Natural Appearing	Retention	Not Seen
Dog Lake	Natural Appearing	Natural Appearing	Retention	Not Seen
Clear Lake	Natural Appearing	Natural Appearing	Retention	Partial Retention
Rimrock Lake	Natural Appearing	Natural Appearing	Retention	Partial Retention
McDaniel Lake	Slightly Altered	Altered	Modification	Modification
Bear Lake	Natural Appearing	Altered	Modification	Modification
Lost Lake	Natural Appearing	Slightly Altered	Partial Retention	Not Seen
*Cooper Lake	Natural Appearing	Slightly Altered	Retention	Partial Retention
*Cle Elum Lake	Slightly Altered	Slightly Altered	Retention	Partial Retention
*Kachess Lake	Slightly Altered	Slightly Altered	Retention	Partial Retention
*Keechelus Lake	Altered	Altered	Partial Retention	Retention

**5. WILDERNESS SETTING**

The seven wilderness areas of the Forest, totaling 831,034 acres, provide a vast variety of recreation opportunities and possible experiences in a remote and wild recreation setting. The variety of settings and experiences possible are identified and categorized in the Wilderness Recreation Opportunity Spectrum System. All areas of each wilderness, except Alpine Lakes, are delineated into one of the four classes: *Pristine, Primitive, Semi-Primitive or Transition*. Each of these classes exhibit different physical, biological and social characteristics and managerial settings. Each have different levels of visitor use.

**Pristine:** The area is characterized as an extensive, unmodified natural environment. Natural processes and conditions have not been measurably affected by the influence of humans. Opportunities for solitude, isolation and challenge are high. Visitor use is very low. There are no managed trails in this class.

**Primitive:** The area is characterized by an essentially unmodified natural environment, with little influence of man noticeable in natural processes and conditions. The opportunities for solitude and isolation are high. Visitor use is low and density of managed trails is very low.

**Semi-Primitive:** The area is a predominantly unmodified natural environment. Evidence of man is noticeable in some areas. Opportunities for solitude and isolation are good. Trails and campsites are present. Visitor use is low but other users will generally be encountered during the primary use seasons.

**Transition:** The area is classified semi-primitive in most aspects of wilderness setting and resource conditions. Social encounters can be expected to be higher than semi-primitive during high use periods of the primary use season. Transition areas are close to major trail heads and areas that receive more of the single day use mixed in with users traveling into or out of the other classes.

The acreage in each Wilderness Recreation Opportunity Spectrum (WROS) class for all wilderness except Alpine Lakes is:

WROS class	Acres
Pristine	207,920
Primitive	248,820
Semi-Primitive	117,220
Transition	11,540

For more detailed information concerning Management for each WROS class see the Standards and Guidelines for Wilderness in this Chapter.

**6. WILDLIFE**

The objective of the wildlife program is to maintain and improve wildlife habitat with a program larger than any in the past. Growth is due to the demands for wildlife viewing and hunting, and the laws regarding threatened and endangered species and viable populations. The wildlife program is anticipated to expand to achieve the following:

1. Thirty percent or more of the program will be support to other resource activities. This support will be in the form of coordination with other management activities in order to avoid or mitigate adverse effects and identify opportunities to improve wildlife habitat. Support will be mostly to timber and recreation with a small percent spent on land exchanges and mining activities. There is planned development of combined wildlife/recreation projects for nonconsumptive use of wildlife.
2. Thirty percent or more of the program will be the development and maintenance programs and partnerships. Emphasis will be placed on maintaining and developing partnerships with the Yakama Indian Nation and the Confederated Tribes of Colville, Washington Department of Wildlife, U.S. Fish and Wildlife Service, timber organizations and State and local environmental groups to meet public demands for wildlife.
3. Monitoring programs will be developed to make up at least ten percent of the workload.

4. The 1,900 acres of nonstructural and 400 structural habitat improvements planned per year is anticipated to become thirty percent of the wildlife program. This activity will emphasize habitat improvements for Threatened, Endangered and Sensitive wildlife species to maintain viable populations. Second in priority to the T.E. and S. wildlife are improvements to increase recreation use of wildlife.

## 7. OLD GROWTH

The primary old growth forest habitat objective is to conserve enough old growth forest with adequate distribution to provide for biological diversity, wildlife and plant habitat and aesthetic values. It is the goal of this plan that old growth ecosystems and their attendant attributes be maintained to meet the needs and desires of the public. At the end of the first decade it is estimated that there will be 307,300 acres of old growth remaining and by the end of the fifth decade 261,200 acres (assuming no ingrowth).

To achieve these goals and objectives will require a better understanding of what old growth ecosystems really are--how do you define them. Once a definition can be agreed upon, an inventory of old growth will tell us how much we really have and the rate at which that amount is changing by type of site. In a word, old growth will need to be monitored. This will include monitoring of activities to determine if the Standards and Guidelines and Management Prescriptions are being implemented, and if when implemented, are meeting management objectives. Monitoring will also provide feedback for corrective actions.

To meet old growth management objectives will require cooperation both in and out of the Forest Service. Management partnerships between state, federal and private parties will be needed to facilitate the accomplishment of the goals and objectives for old growth management on the Wenatchee National Forest. Coordination with other resource management activities are needed to identify and avoid adverse impacts to old growth areas within harvest prescriptions that are needed within each sub-drainage to maintain adequate distribution of old growth for biological diversity and wildlife and plant habitat.

## 8. FISHERIES

The primary fish habitat management objectives are to maintain and improve fish habitat capability, develop an aggressive habitat management program, integrate fish and riparian habitat management into the other multiple-use activities and to develop management partnerships with State and Federal fish management agencies, the Yakima Indian Nation, the Confederated Tribes of Colville and private groups. It is the goal of this plan that fish habitat, quantity and quality, be at least maintained at existing levels and both the availability and quality of habitat should show an increasing trend.

Fish habitat goals and objectives will be accomplished through:

1. Coordination with other resource management activities in order to identify and avoid or mitigate potential adverse impacts and identify opportunities to improve fish habitat;
2. Implementation of a coordinated fish habitat and watershed improvement program based on inventories and drainage management objectives. It is anticipated that approximately four miles of anadromous fish stream would be treated each year;
3. Implementation of all activities using Forest-wide Standards and Guidelines, Best Management Practices and the Riparian Habitat Management Prescription (EW-2) to protect water quality and fish habitat;
4. Monitoring of activities to determine if the Standards and Guidelines and Management prescriptions being implemented are meeting management objectives and to provide feedback for corrective actions;
5. Implementation of an accelerated stream/watershed survey program to quantify current habitat conditions and develop management objectives by drainage. It is anticipated that approximately 250 miles of stream will be surveyed every year for the first few years;

6. Development of Five Year Action Plans, to be updated annually, to prioritize work and establish program direction; and

7. Development of management partnerships with State and other Federal fish, water quality, and environmental agencies, the Yakima Indian Nation, the Confederated Tribes of Colville, and private groups to facilitate the accomplishment of the above goal and objectives.

A major emphasis in the early stages of Plan implementation will be to determine the current condition of riparian habitat and to more fully develop desired riparian habitat conditions by sub-drainage.

Other objectives and specific outputs associated with riparian areas are incorporated in the discussions for related resources in this section of the Plan.

**9. RIPARIAN AREAS**

The primary objective for riparian areas will be to maintain and enhance long-term productivity to provide for riparian dependent resources including water quality, fish, wildlife and plant habitat. Decisions regarding management of other resource elements such as timber, grazing and recreation will be made in favor of riparian dependent resources where use conflicts exist.

**10A. VEGETATION: TIMBER**

**Suitability**

Timber harvest is scheduled from a base of 630,494 acres of suitable Forest lands. Table IV-5 shows a summary of the Forest land classification.

**TABLE IV-5  
LAND CLASSIFICATION**

<b>Classification</b>	<b>Acres</b>
1. Non-Forest land (includes water, roads, and administrative sites)	713,082
2. Forest land	1,451,098
3. Forest land withdrawn from timber production	436,829
4. Forest land not capable of producing crops of industrial wood (not restockable within 5 years and less than 20 cu. ft. production)	137,717
5. Forest land physically unsuitable: --irreversible damage likely to occur	18,720
--not restockable but greater than 20 cu. ft production	65,933
6. Forest land--inadequate information	-0-
7. Tentatively suitable Forest land (item 2 minus items 3, 4, 5, and 6)	791,899
8. Forest land not appropriate for timber production	161,405
9. Unsuitable Forest land (items 3, 4, 5, and 8)	820,604
10. Total suitable Forest land <sup>1/</sup> (items 2 minus item 9)	630,494
11. Total National Forest land (items 1 and 2)	2,164,180

1/ The 630,494 acres are those available fo harvest in FORPLAN. Approximately 54,000 of these acres did not go into solution due to economic reasons

**FIGURE IV-2  
PLANNED TIMBER SELL LEVELS**

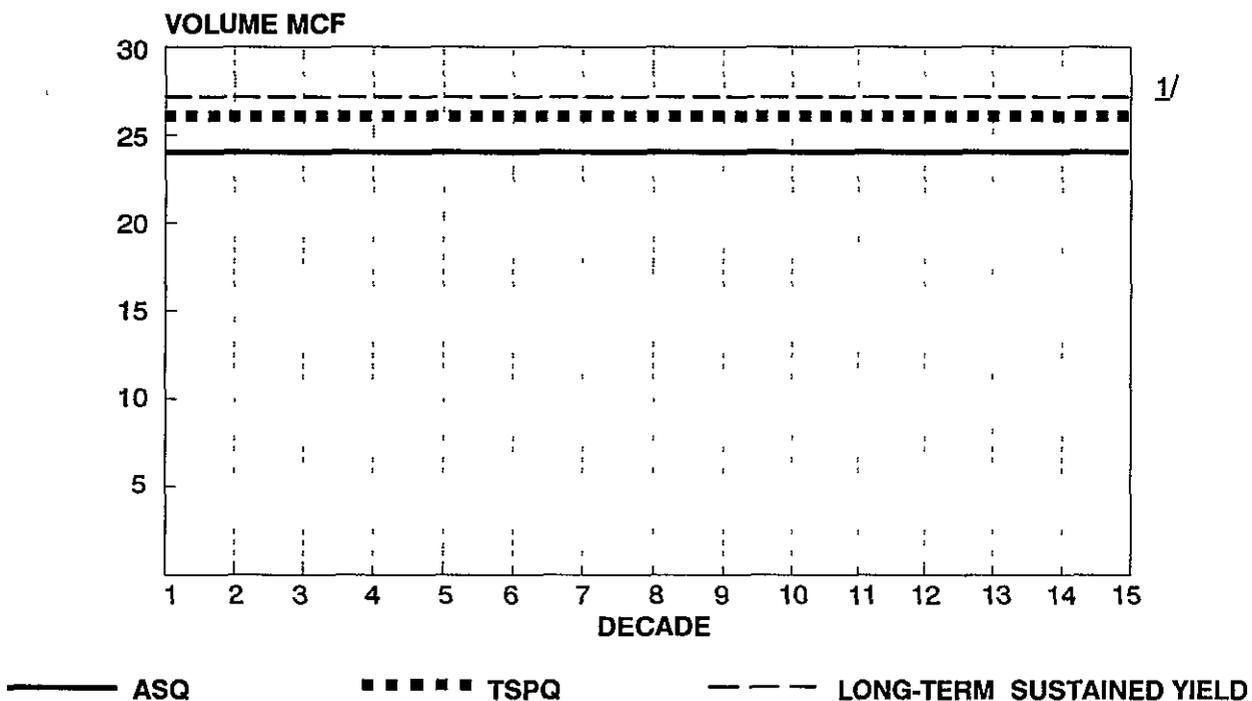


Table IV-6 shows how the suitable land base is distributed by Management Area for this Plan. Scheduled timber harvest will come only from those allocations with suitable acres. All of the Management Area allocations with suitable lands will contribute to the ten year harvest program in the first decade.



**TABLE IV-6  
SUITABLE ACRES BY MANAGEMENT AREA**

		Acres	
Management Area		Suitable	Unsuitable
EF-1	Experimental Forest <sup>1/</sup>	0	4,770
EW-1	Key Deer and Elk Habitat	47,700	71,042
EW-2	Riparian-Aquatic Habitat Protection Zone	33,963	13,399
EW-3	Key Big Game Habitat, Unroaded	0	19,059
GF	General Forest	251,201	67,141
MP-1	Mather Memorial Parkway <sup>3/</sup>	0	13,717
OG-1	Old-Growth Habitat, Dedicated	0	79,840
OG-2	Old Growth Habitat, Managed	40,683	8,332
RE-1	Developed Recreation <sup>2/</sup>	0	6,020
RE-2a	Dispersed Recreation, Unroaded Motorized <sup>3/</sup> (W/O 4x4 Routes)	0	79,607
RE-2b	Dispersed Recreation, Unroaded Motorized <sup>3/</sup> (W/4x4 Routes)	0	16,748
RE-3	Dispersed Recreation, Unroaded Nonmotorized <sup>3/</sup>	0	116,092
RE-4	Dispersed Recreation, Unroaded, Harvest	2,841	3,774
RM-1	Intensive Range Management	7,823	9,879
RN-1	Research Natural Areas	0	2,247
SI-1	Classified Special Areas - Scenic <sup>3/</sup> and/or Recreation	0	70,511
SI-2	Classified Special Areas - Other <sup>3/</sup>	0	2,799
ST-1	Scenic Travel - Retention	61,311	31,397
ST-2	Scenic Travel - Partial Retention	172,188	64,364
UC-1	Utility Corridor	<sup>4/</sup>	<sup>4/</sup>
WI-1	Wilderness	0	841,034
WS-1	Scenic River (Proposed)	4,346	1,208
WS-2	Recreational River (Proposed)	8,438	2,926
WS-3	Wild River (Proposed)	0	23,426 <sup>5/</sup>
Water		0	7,780
<b>TOTAL</b>		<b>630,494</b>	<b>1,533,686</b>

<sup>1/</sup> Some Harvest is expected in future years for experimental reasons. Any volume generated would be nonchargeable to the annual sale quantity.

<sup>2/</sup> Nonscheduled harvests of danger trees and removals to manipulate the vegetation within recreation areas is expected. However, because this harvest is nonscheduled it is not chargeable to the annual sale quantity but is a part of the planned programmed harvest if financing is available.

<sup>3/</sup> Some limited harvest for catastrophic damage or recreation improvements is possible, but is not expected to be significant or programmable.

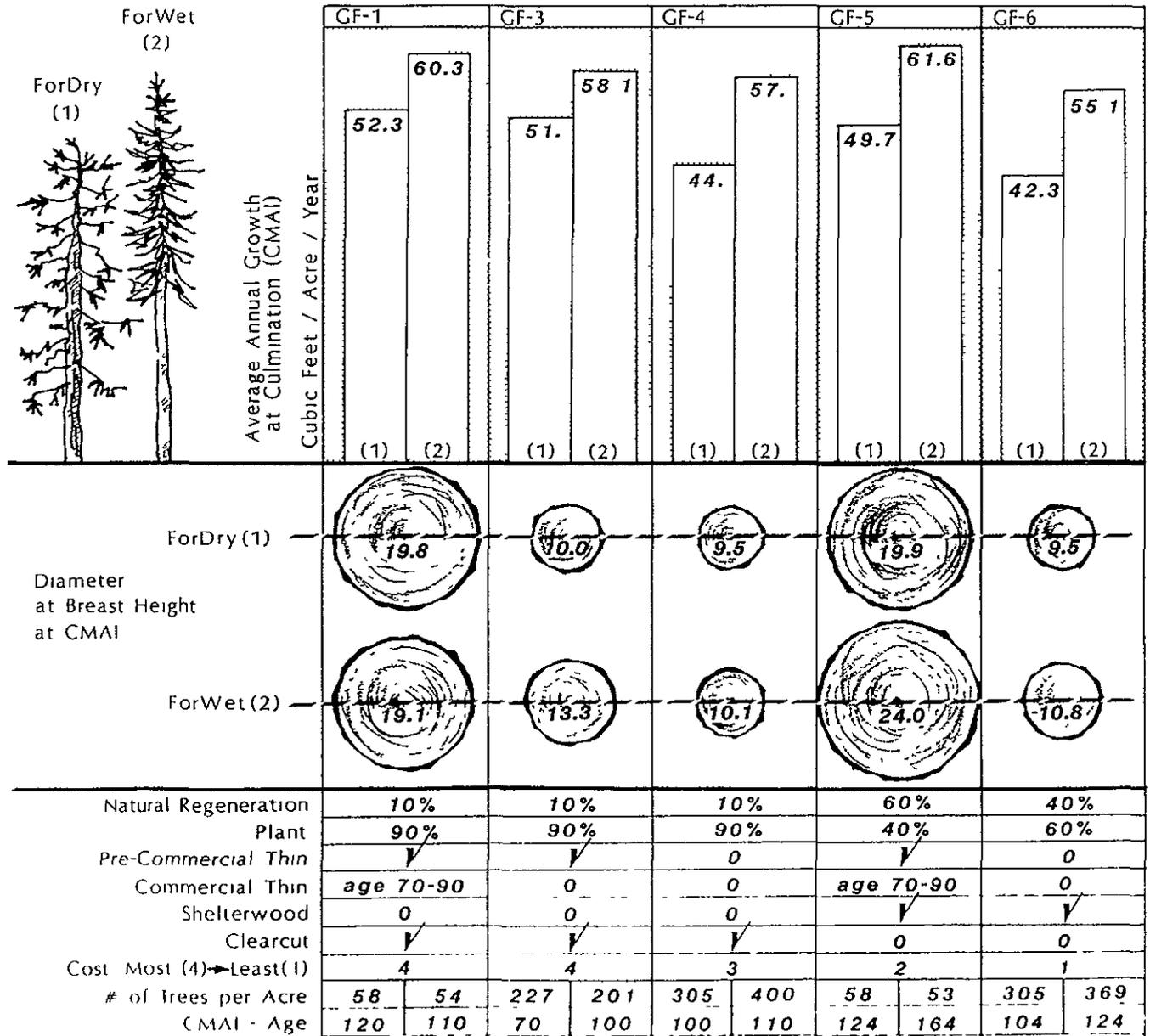
<sup>4/</sup> Acres distributed among other management areas.

<sup>5/</sup> Acres are also included in WI-1 wilderness management area, except 170 acres.

**YIELD**

Figure IV-3 depicts the General Forest Prescription timber regimes.

**FIGURE IV-3  
TIMBER YIELD TABLES - GENERAL FOREST**



Management emphasis other than General Forest were restricted to silvicultural regimes designed to achieve specific resource objectives such as wildlife habitat or scenic viewsheds.

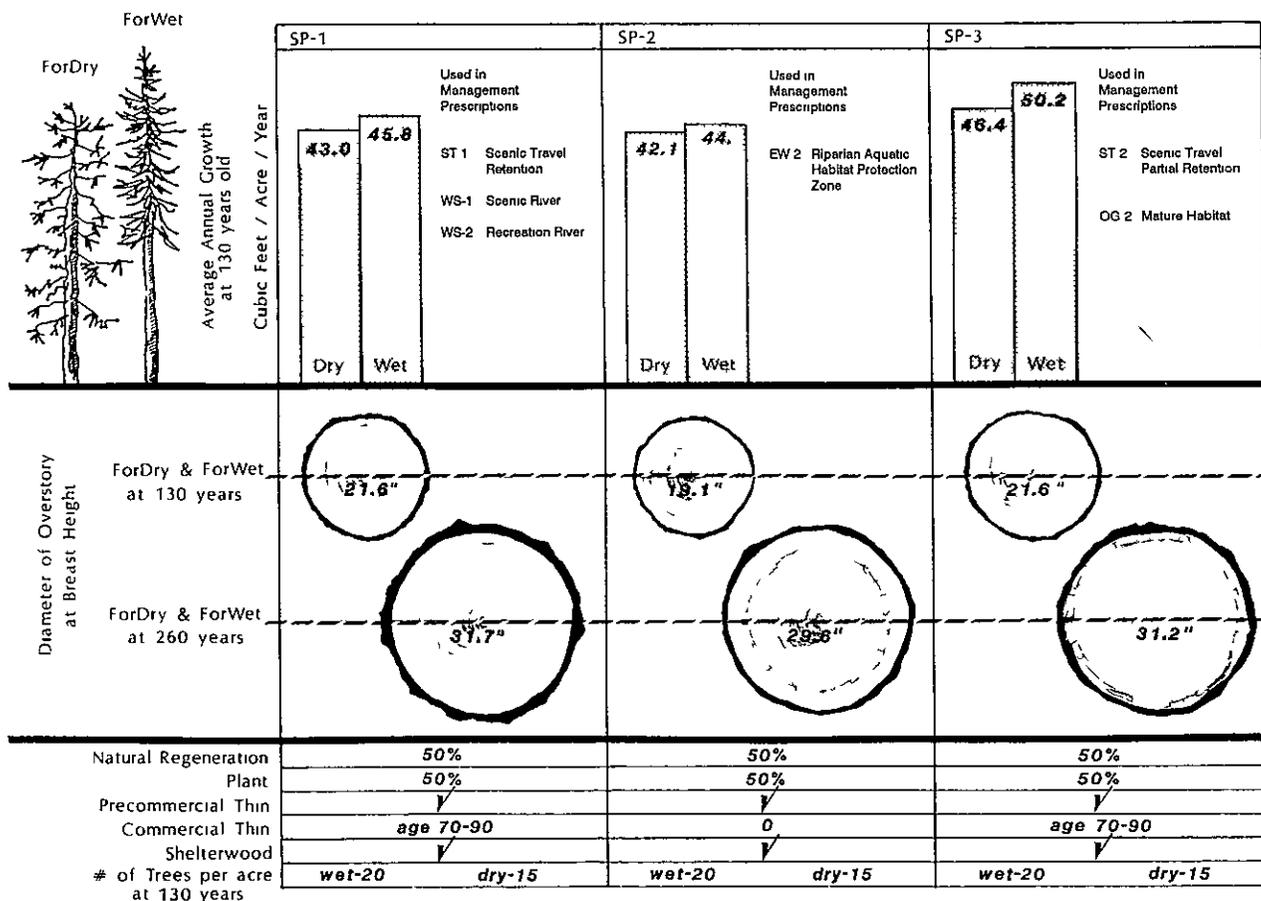
The intensive Range Management (RM-1) Prescription assumes the same silvicultural practices as GF-1, but with a 10 year regeneration lag. Three extended-rotation timber yield regimes were developed for use with the following prescriptions:

TABLE IV-7

Prescription	Yield Table
Key Big Game Habitat (EW-1)	RM-1
Riparian-Aquatic Habitat Protection Zone (EW-2)	SP-2
Mature Habitat (OG-2)	SP-3
Scenic Travel-Retention (ST-1)	SP-1
Scenic Travel-Partial Retention (ST-2)	SP-3
Scenic River (WS-1)	SP-1
Recreational River (WS-2)	SP-1
Dispersed Recreation, Unroaded, Timber Harvest (RE-4)	SP-2

Figure IV-4 depicts the extended-rotation timber yield regimes.

FIGURE IV-4  
TIMBER YIELD TABLES - SPECIAL



**Productivity**

Most of the area not restockable within 5 years is within the less than 20 cubic foot productivity class. An approximation of timber productivity classification is shown in Table IV-8.

**TABLE IV-8  
TIMBER PRODUCTIVITY CLASSIFICATION**

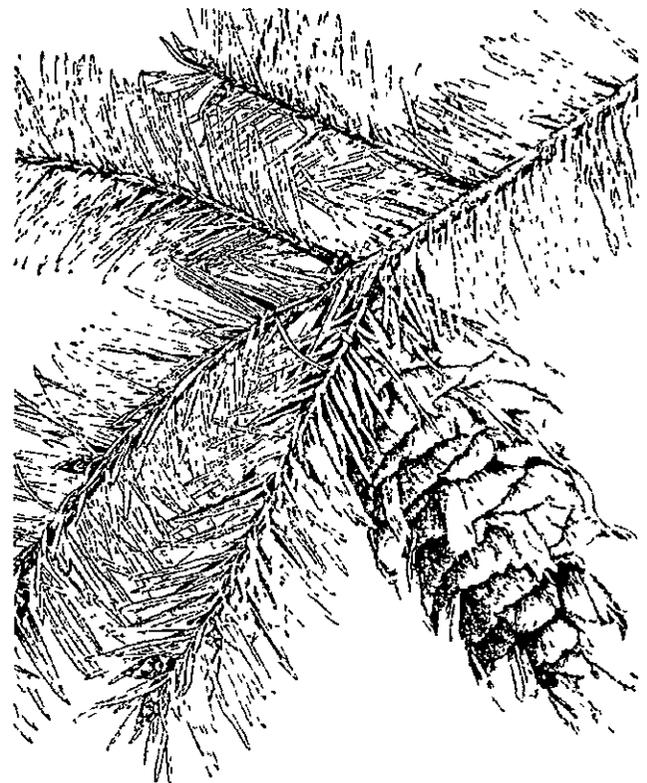
Potential Growth (Cubic Feet/Acre/Year)	Suitable Lands (Acres)
Less than 20	6,008
20-49	220,672
50-84	315,247
85-119	69,354
120-164	19,231
165-224	0
225+	0
<b>Total</b>	<b>630,494</b>

The average growth potential of trees measured during the 1977 inventory was site index 70 for ponderosa pine (dry ecotype) and site index 83 for Douglas-fir (wet ecotype). Site index is a measure of the height of trees at age 100 of the dominant or largest trees in the stands. This correlates to an average potential productivity of 52.3 cubic feet per acre per year on dry sites and 60.3 cubic feet per acre per year for wet types with intensive management.

**Annual Sale Quantity**

The annual sale quantity calculated from the suitable acres is 24.3 million cubic feet or 136 million board feet. In addition, there is 0.3 million cubic feet of sawtimber and 1.5 million cubic feet of other products. The sawtimber will come from unregulated acres including campgrounds, Experimental Forest, Mather Memorial Parkway, and/or salvage cutting from unsuitable lands. The other products are expected to be removed from down, defective, or trees too small to be included in the allowable sale quantity. See Table IV-9.

There is an estimated 54,000 acres of economically unsuitable lands that could become suitable if economic conditions and demand for forest products change the stumpage values. These are now handled as economically inefficient lands within the harvest prescriptions by the FORPLAN model. It is estimated that this could increase the annual allowable sale quantity by approximately 10 million board feet. This increase would be the maximum if all currently inefficient acres became economic. It is not likely that all currently inefficient acres would become suitable at the same time. It is reasonable to expect that there will always be some acres which are biologically suitable but not economic. Site specific evaluation may find somewhat more or less than the current estimate.



**Table IV-9**  
**Allowable Sale Quantity and Timber Sale Program Quantity**  
**(Annual Average for First Decade) 1/**

<b>Allowable Sale Quantity <u>2/</u></b>		
<b>Harvest Method</b>	<b>Sawtimber (MMCF)</b>	<b>Other Products (MMCF)</b>
<b>Regeneration harvest:</b>		
Clearcut	11.8	1.1
Shelterwood and seed tree		
- Preparatory cut	0.1	
- Seed cut	3.8	0.1
- Removal cut	4.5	0.2
<b>Selection</b>	<b>0.1</b>	<b>0.1</b>
<b>Intermediate harvest:</b>		
Commercial thinning	0.1	0.1
Salvage/sanitation	2.1	0.2
<b>Totals</b>	<b>22.5</b>	<b>1.8 <u>6/</u></b>
	Sawtimber	Additional Sale <u>3/</u> Other Products
Total for all harvest methods	.3 <u>7/</u>	1.5

Allowable sale quantity: 24.3 MMCF and 136 MMBF 4/  
 Timber sale program quantity 5/: 26.1 MMCF and 146 MMBF 4/

- 1/ Expressed to nearest 0.1 MM board and cubic feet
- 2/ Includes only chargeable volumes from suitable lands.
- 3/ Includes only nonchargeable volumes from suitable and/or unsuitable lands
- 4/ Based on local unit of measure.
- 5/ Total of allowable sale quantity and additional sales.
- 6/ Chargeable fuelwood, house logs, and "Big Toy" roundwood products
- 7/ Campgrounds and Experimental Forest potential yield. Includes danger tree removal and experimental cutting.

**Present and Future Forest Conditions**

Table IV-10 presents the estimates of timber volumes for the present and future forest growing stock. Standing volumes will decrease, but annual net growth will increase as more acres of managed stands are created.

**TABLE IV-10  
PRESENT AND FUTURE FOREST CONDITIONS**

	Unit of Measure	Suitable Land	Unsuitable Land	Total
Present forest: Growing stock	MMCF	1,807	971 <sup>1/</sup>	2,778
	MMBF	9,848	5,292	15,140
Live cull	MMCF	4.2	3.5 <sup>2/</sup>	7.7
	MMBF	22.9	19.0	41.9
Salvable dead	MMCF	27.3	22.7 <sup>2/</sup>	50.0
	MMBF	148.7	123.7	272.4
Annual net growth	MMCF	12.5	7.7 <sup>1/</sup>	20.2
	MMBF	141.1	42.0	183.1
Annual mortality	MMCF	10.2	8.5 <sup>2/</sup>	18.7
	MMBF	55.4	46.1	101.5
Future forest: Growing stock	MMCF	1,658		
Annual net growth	MMCF	16.6		
Rotation age	Years	70 <sup>3/</sup> to 120		
Age class distribution acres (suitable lands)	Age Class	Present Forest	Future Forest	
	0-30	54,340	55,878 <sup>4/</sup>	
	50	349,844	155,089	
	100	90,061	320,051	
	150+	136,249	99,476	
<b>Total</b>		<b>630,494</b>	<b>630,494</b>	

<sup>1/</sup> Based on Timber Resource Statistics (Bassett 1983).

<sup>2/</sup> Based on 1969 Timber inventory statistics.

<sup>3/</sup> Average rotation age for regenerated stands on lands with timber emphasis by major forest types

<sup>4/</sup> Based on FORPLAN acres by age class.

**TABLE IV-11**  
**VEGETATION MANAGEMENT PRACTICES**  
**(Annual Average in First Decade for Suitable Lands)**

PRACTICE	ACRES
Regeneration Harvest :	
Clearcut	2,719
Shelterwood and Seed Tree	
-Preparatory Cut	100
-Seed Cut	2,697
-Removal Cut	2,320
Selection	112
Intermediate Harvest:	
Commercial Thinning	252
Salvage/Sanitation	210
Timber Stand Improvement	4,200 1/
Reforestation	4,300 2/

1/ Based on 10 year Action Plan.

2/ Based on reforestation/timber stand improvement needs report.

Table IV-11 shows all planned methods of timber harvest from clearcut to light volume removal, thinning and sanitation salvage.

Although all harvest methods can apply to all site conditions and management prescriptions, some combinations are more likely to occur than others. A little more than half of the volume harvested on the forest in the next decade will come from clearcutting, see Table IV-11. The remainder of the harvest volume will come from silvicultural prescriptions that leave various amounts of trees on the site.

The various stages of shelterwood cutting: preparatory cut, seed cut, and removal cut, occur on the greatest number of acres, totalling 5,229 acres per year. As these treatments can occur at different time frames on a given stand, each step is shown separately on Table IV-11.

Selection harvest systems will be used especially on the driest and highest elevation suitable sites. Ponderosa pine stands on south slopes, especially if free of mistletoe are especially adaptable to uneven-aged management. This is due to the

characteristics of the species including: (1) wind firmness, (2) ability to respond to partial harvest with increased growth and, (3) resistance to fire and logging damage due to thick bark (USDA 271, Bulletin number 1965). At elevations above 5,000 feet, the selection harvest system may be appropriate, also this is especially true in stands where natural regeneration of species such as Pacific silver fir is occurring.

Mid-elevation stands on north and west facing slopes containing grand fir and/or mistletoed Douglas-fir are commonly clearcut. Grand fir and Douglas-fir are highly susceptible to Phellinus weirrii a root rot, and defoliating insects such as western spruce budworm and the tussock moth. Attempts at uneven-aged management and partial cutting tends to favor increased disease and insect losses in these particular species types. Currently, heavy mortality is occurring in old partial cut and overstocked grand fir stands due to Scolytus ventralis, a bark beetle that prefers grand fir. Past spruce budworm treatment areas were primarily located on grand fir and Douglas-fir sites. As much as 200,000 acres were defoliated by the budworm on the forest between 1970 and 1978

Clearcutting, although effective in alleviating many of the current insect, disease, and fuel buildups, is not acceptable to much of the public unless the clearcuts are very carefully designed. Therefore, a shelterwood system designed to maintain large, older trees of the most desirable species and vigor will be used on the foreground of most scenic travel ways. Also see Appendix H of the FEIS for a detailed discussion of the selection of harvest cutting methods.

## **10 B. VEGETATION: FORAGE**

In the first decade permitted livestock grazing (Table IV-2) will average 23,000 AUM's which is the same as the current use, and leaves a livestock grazing capacity of approximately 15,700 AUM's unused. In addition to the excess livestock capacity, the Forest's total forage production allows for approximately 94,700 AUM's of forage for big game. Actual permitted use for livestock will not exceed the production potential on existing allotments and will allow for expected increases in big game numbers.

Existing range allotments have an estimated livestock grazing capacity of over 27,000 AUM's, on 203,500 acres of suitable range, and will accommodate all of the expected increase in permitted use. However, many of the existing allotment plans are outdated, and in order to meet the potential outputs these plans require reanalysis. It is through full implementation of these reanalyzed plans that livestock numbers will be increased, and that other outputs such as improved range conditions and enhancement of other resource will be attained. A schedule of allotment analysis needs can be found in Appendix A under range management detailed project schedules.

Although the existing allotments may carry the expected livestock increase in the first and second decades, some areas outside of these allotments containing suitable range may be incorporated into the allotments in order to meet all resource objectives. Some of the existing sheep allotments may be converted to cattle allotments if current trends in the livestock industry continue.

As discussed above, meeting the goals and objectives of this Plan is contingent on full implementation of the allotment plans. These allotment plans contain schedules for structural improvements such as fences and water developments, and non-structural improvements such as noxious weed control. In order to fully implement allotment plans, accomplishment of improvement schedules become imperative. Table IV-2 show outputs of 9 miles of fence, 11-12 spring developments, and about 375 acres of noxious weed control which will be required annually to fully implement the forage management program. Approximately one-half of these are reconstruction of existing improvements while the remainder are needed to implement existing plans. Detailed project schedules are found in Appendix A and show type, location, amount, and year scheduled. This detailed schedule will be updated periodically to reflect changes resulting from reanalysis of allotments.

The final step in meeting the objectives of this Plan is monitoring the forage management program. The monitoring requirements are found in Table V-1 in Chapter V.

**10 C. VEGETATION: UNIQUE ECOSYSTEMS**

The Tumwater Botanical Area was established under Regulation T-9(I) on June 10, 1938, for the protection of Lewisia tweedyi. The 1,104 acres were redesignated in 1971 as a botanical area under 36 CFR 251.22 to be managed in a near natural condition to protect plant species which occur there.

Although the area is located along a major highway, it is rather inaccessible due to the steep, rugged terrain. It is usually visited only by people who wish to view or study Lewisia tweedyi. The area is within Sections 28 and 34, T.25N., R17E., P.M.W., and is approximately four miles north of Leavenworth, Washington, in the Tumwater Canyon.

One additional Botanical Area (Lake Creek) is proposed by this Plan.

**Lake Creek Botanical Area** - Located on the Entiat Ranger District in Sections 27, 28, 33, and 34, T. 29 N., R. 19 E., this area is 212 acres. Protection is proposed for plants associated with an undisturbed wetland habitat.

Several additional unique areas are included in this Plan as special interest (SI-2) allocations. They include the following: The west end of Lake Wenatchee allocated for its aquatic habitat, Twin Lakes Ponds; Wenatchee River Indian Site for its cultural sites; a special botanical area near Ponderosa Estates; Upper Naneum Meadow for its ecosystem; Boulder Cave, Kloochman Rock, Goose Egg Mountain, and Blue Slide for geological as well as botanical features.

The Plan also includes old growth preserved for wildlife habitat, ecosystems diversity, and aesthetic reasons in addition to the spotted owl network. These areas include Hornet Ridge, Rattlesnake Springs, Heather Lake Trailhead, upper end of the Little Wenatchee River, and the "Sanctuary" cedar grove.

**10 D. VEGETATION: THREATENED, ENDANGERED, AND SENSITIVE PLANTS**

There are no known Federally listed threatened or endangered plant species on the Forest.

There are 50 plant species on the Forest that are on the Region 6 sensitive plant list (Table IV-12). Of the 50 species, 7 are candidates for the Federal list and the remaining 43 are listed by the State of Washington. The extent of the populations of these species on the Forest is unknown.

Before a project is initiated, inventories for populations and distribution of threatened, endangered, and sensitive species will be conducted on a priority basis. Some general inventories of species and their habitat will be required and research completed as needed to meet management goals.



Hackelia venusta

TABLE IV-12  
SPECIAL PLANT SPECIES IN THE WENATCHEE N.F.

LIST OF SENSITIVE SPECIES

Date Last Revised 5/23/88

<u>PLANTS</u>	<u>Status</u>	<u>Occurrence</u>
<u>Scientific Name</u> common name		
<u>Agoseris elata</u> tall agoseris	RF - S	D
<u>Anemone nuttalliana</u> pasque flower	RF - S	D
<u>Astragalus arrectus</u> Palouse milkvetch	RF - S	D
<u>Antennaria parvifolia</u> Nuttall's pussy-toes	RF - S	D
<u>Botrychium lunaria</u> lance-leaved grape-fern	RF - S	S
<u>Botrychium minganense</u> Victorin's grape-fern	RF - S	D
<u>Botrychium montanum</u> mountain moonwort	RF - S	D
<u>Calamagrostis tweedyi</u> Cascade reedgrass	Cat 2	D
<u>Carex bauxbaumii</u> Bauxbaum sedge	RF - S	D
<u>Carex camosa</u> bristly sedge	RF - S	D
<u>Carex interrupta</u> green-fruited sedge	Cat. 3c	D
<u>Carex macrochaeta</u> large-awn sedge	RF - S	S
<u>Carex proposita</u> smokey mountain sedge	RF - S	D
<u>Carex scopulorum</u> var. <u>prionophylla</u> saw-leaved sedge	RF - S	D
<u>Cicuta bulbifera</u> bulb-bearing water hemlock	RF - S	D
<u>Chaenactis ramosa</u> branching chaenactis	Cat. 3c	D
<u>Chaenactis thompsonii</u> Thompson's chaenactis	Cat. 3c	D
<u>Cryptogramma stelleri</u> Stellar's rock-brake	RF - S	D
<u>Cypripedium calceolus</u> var. <u>parviflorum</u> yellow ladyslipper	RF - S	S
<u>Cypripedium fasciculatum</u> clustered ladyslipper	Cat. 3c	D
<u>Delphinium viridescens</u> Wenatchee larkspur	Cat. 1	D

**TABLE IV-12 (Continued)**  
**SPECIAL PLANT SPECIES IN THE WENATCHEE N.F.**

**LIST OF SENSITIVE SPECIES**

<u>PLANTS</u>	<u>Status</u>	<u>OCCURRENCE</u>
<u>Scientific Name</u> common name		
<u>Eleocharis atropurpurea</u> purple spike-rush	RF - S	S
<u>Epipactis gigantea</u> giant helleborine	RF - S	D
<u>Erthrichium nanum</u> var. <u>elongatum</u> pale alpine forget-me-not	RF - S	D
<u>Gentiana douglasiana</u> swamp gentian	RF - S	S
<u>Geum rossii</u> var. <u>depressum</u> Ross' avens	RF - S	D
<u>Githopsis specularioides</u> common bluecup	RF - S	D
<u>Hackelia hispida</u> var. <u>disjuncta</u> rough stickseed	RF - S	D
<u>Hackelia venusta</u> showy stickseed	Cat 2	D
<u>Iliamna longisepala</u> longsepal globemallow	RF - S	D
<u>Limosella acaulis</u> southern mudwort	RF - S	S
<u>Mimulus suksdorfii</u> Suksdorf's monkey flower	RF - S	S
<u>Nicotiana attenuata</u> wild tobacco	RF - S	D
<u>Orobanche pinorum</u> pine broomrape	RF - S	D
<u>Oryzopsis hendersonii</u> Henderson ricegrass	RF - S	S
<u>Pellaea brachyptera</u> Sierra cliff-brake	RF - S	D
<u>Pellaea breweri</u> Brewer's cliff-brake	RF - S	D
<u>Pedicularis rainierensis</u> Mt. Rainier lousewort	RF - S	D
<u>Petrophytum cinerascens</u> Chelan rockmat	Cat. 2	S
<u>Platanthera sparsiflora</u> Canyon bog-orchid	RF - S	D
<u>Poa nervosa</u> var. <u>nervosa</u> Wheeler bluegrass	RF - S	S
<u>Ribes irriguum</u> Idaho gooseberry	RF - S	S
<u>Salix vestita</u> var. <u>erecta</u> rock willow	RF - S	D

TABLE IV-12 (Continued)  
SPECIAL PLANT SPECIES IN THE WENATCHEE N.F.

LIST OF SENSITIVE SPECIES

PLANTS	Status	OCCURRENCE
Scientific Name common name		
<u>Saxifraga debilis</u> pygmy saxifrage	RF - S	D
<u>Saxifraga integrifolia</u> var. <u>apetala</u> swamp saxifrage	RF - S	D
<u>Sidalcea oregana</u> var. <u>calva</u> Wenatchee checker-mallow	Cat. 2	D
<u>Silene seelyi</u> Seely's silene	Cat. 2	D
<u>Spiranthes romanzoffiana</u> var. <u>porrifolia</u> western ladies-tresses	RF - S	D
<u>Tillaea aquatica</u> pigmy-weed	RF - S	S
<u>Trifolium thompsonii</u> Thompson's clover	Cat 2	D

Key to Abbreviations Used Above

Federal Candidate Species

- Cat. 1 = Category 1 Species (US Fish and Wildlife Service has enough information to support the appropriateness of proposing the species to the list of Endangered or Threatened species)
- Cat. 2 = Category 2 Species (Needs further information to confirm the appropriateness of proposing the species to the list of Endangered or Threatened species)
- Cat. 3 = Category 3 Species (No longer being considered for listing as Endangered or Threatened and are not regarded as candidate species:
  - a. Taxon extinct
  - b. Not a taxonomic entity
  - c. Taxon more abundant and/or widespread than previously thought and/or not subject to any identifiable threat)

RF - S = Regional Forester Sensitive Species

D = Documented occurrence

S = Suspected occurrence

**10 E. VEGETATION: RESEARCH NATURAL AREAS**

Research Natural Areas (RNA's) are part of a Federal system of tracts established for non-manipulative research and educational purposes. Each RNA is a site where some features are preserved for scientific purposes and natural processes are allowed to dominate. Their main purposes are to provide: (1) baseline areas against which effects of human activities can be measured; (2) sites for study of natural processes in undisturbed ecosystems; and (3) gene pool preserves for all types of organisms, especially those which are classified as rare and endangered.

Prior to establishment, a comprehensive formal report is made. For RNA's proposed on National Forest System lands, the report is submitted to the Chief of the Forest Service for approval.

**a. Established RNA's**

There are two established RNA's on the Forest. Meeks Table RNA on the Naches Ranger District is 64 acres and represents the ponderosa pine/pine grass plant community with a co-dominance of Douglas-fir. It was established on July 7, 1948, and is now within the William O. Douglas Wilderness.

Thompson Clover RNA located in Swakane Canyon on the Entiat Ranger District exemplifies a plant community characterized by Thompson Clover. It was established on February 17, 1977.

**b. Formally Proposed RNA's**

The Research Natural Area Committee for the Pacific Northwest has formally proposed two additional RNA's. Eldorado Creek located in the Teanaway drainage of the Cle Elum Ranger District is 1,336 acres in size and represents a plant community found on serpentine derived soils. The Eldorado Creek area was designated as a Special Area (Proposed RNA) in the Alpine Lakes Management Plan (November 2, 1981). Fish Lake Bog on the Lake Wenatchee Ranger

District is a 106 acre area on the west end of Fish Lake near Lake Wenatchee. This represents a floating bog community.

Preliminary reports have been made for both of these areas; Fish Lake Bog on July 5, 1979, and Eldorado Creek on August 9, 1972. A supplemental report on the mineral character of the proposed Eldorado Creek RNA was made on November 6, 1974.

**c. Recommended RNA's**

The Research Natural Area Committee for the Pacific Northwest Region determined that the candidate RNA's listed in Table IV-13 represent the best examples of particular kinds of natural ecosystems in the Region and are needed to meet present and future demands. There may be some future RNA needs that can best be satisfied on the Wenatchee National Forest. When suitable new areas are identified, they will be considered for addition to the Research Natural Area inventory.

**TABLE IV-13**  
**RECOMMENDED RESEARCH NATURAL AREAS**  
1984

Name	Area (Acres)	Location (District)	Plant Community Exemplified
• 1 Cedar Creek	2205	Naches	Mixed old-growth conifer/ shrub forest and Pacific silver fir forest
** 2 Icicle/Frosty Creek	784	Leavenworth	Western red cedar/western hemlock forest
** 3 Chiwaukum Creek	1124	Leavenworth	Grand fir mixed old-growth conifer/shrub
4 Drop Creek	530	Cle Elum	Englemann Spruce/Subal- pine fir forest

\* Within the William O. Douglas Wilderness

\*\* Within Alpine Lakes Wilderness

**10 F. VEGETATION: ENTIAT  
EXPERIMENTAL FOREST**

**a. Current Management Program**

The Entiat Experimental Forest includes 4,770 acres of Forest lands located within the Entiat River drainage northwest of Wenatchee, Washington. Research has been conducted on the area since 1957; in 1971, it was formally designated as an Experimental Forest. The Pacific Northwest Forest and Range Experiment Station and the Wenatchee National Forest cooperatively administer the area with the primary goal of providing opportunities for studying the effects of forest management and fire on vegetation, soil, and water resources. The area was selected as being representative of steep, forested watersheds occurring along the east slope of the Cascades. It consists of three similar, contiguous watersheds ranging in size from 1,168 acres to 1,393 acres, and in elevation from 1,800 feet to 7,000 feet. The mean slope is 50 percent with slopes as steep as 90 percent.

A major wildfire which burned most of the area in 1970 has had a dramatic impact on Forest vegetation. Pre-fire vegetation was primarily undisturbed, mature forest with small, subalpine grass-forb openings and bare rock. About 75 percent of the Forest was classed as ponderosa pine, with Douglas-fir the main associated species. Thickets of dense lodgepole pine occurred on wetter sites at higher elevations. Important understory species included bitterbrush, snowbrush, ceanothus, pinegrass, and numerous forbs. Fifteen years after the fire, the vegetation consists of a mosaic of shrub fields intermixed with planted pine and fir, and dense, young stands of naturally-established lodgepole pine. Scattered remnants of unburned old-growth forest occur on rocky ridges and outcrops.

The original research plan for the experimental watersheds was to develop baseline information on climate and hydrology under natural conditions, then test for changes following the construction of roads and implementation of several timber harvest practices. The collection of this information and the preparation of harvest plans were nearly complete when the watersheds burned.

Fire is a common occurrence on this Forest; hence research objectives were quickly changed to utilize the preburn data to evaluate effects of fire on the environment and the alteration of those effects by the re-establishment of forest vegetation. Initial post-fire studies provided land managers, resource specialists, and scientists with a better understanding of: the hydrologic response of burned watersheds including water yield and physical water quality; chemical water quality and site productivity in response to wildfire and erosion control fertilization; natural vegetation recovery and the effectiveness of erosion control seeding and fertilization treatments; soil and water responses to several methods of timber salvage; and effects of a large wildfire on local and regional economics.

## **11. WATER**

The goal for water resource management under this Plan is to maintain favorable conditions of streamflow in regards to water quality, quantity and timing of flows. The dominant objective will be to insure meeting or exceeding Federal and Washington State water quality standards during implementation of this Plan. Accomplishment of the goal will be achieved through a number of objectives that emphasize maintenance or improvement of watershed condition.

Existing data indicate that most streams on the Forest exceed Washington State water quality standards. Water quality will meet the Washington State Class AA (excellent) standards in all decades of the Plan. This will require numerous actions including increased technical support in management decisions, improved resource inventories, application and continuous improvement of best management practices, improvements in riparian area management, aggressive watershed and fish habitat improvement programs, and increased coordination of management activities with other landowners and management entities.

Land management activities must be planned and conducted in a manner so that watershed conditions provide for the protection of the beneficial uses of water. Technical support for water resources will be provided at a level of detail

sufficient to facilitate sound management decisions that minimize the potential for damage to watershed resources, while meeting other multiple-use objectives. Coordinated resource management planning will be promoted, especially in watersheds in which resources are at risk.

Water resource inventory and monitoring will be conducted, in cooperation with other resources and management entities. Inventory will provide information on watershed condition needed for the development of management objectives by sub-drainage. Monitoring will provide feedback for determining if the practices and prescriptions being implemented are meeting management objectives and for identifying corrective action.

The watershed improvement program will be aimed at eliminating the backlog of improvement projects and assuring that project maintenance and treatment of newly identified needs occurs in a timely manner. Improvement projects will be completed in cooperation with other resources and management entities. Refer to Table IV-2 for an estimate of the number of acres treated by decade under this Plan.

The water rights program will be directed at obtaining water rights for all on-Forest water uses. Water uses on National Forest System lands will be protected.

The development of cooperative relationships with State and other Federal agencies, the Yakima Indian Nation, the Confederated Tribes of Colville, and private groups will facilitate the accomplishment of the above goals and objectives.

Coordination of these activities will be facilitated through a Five Year Action Plan designed to provide program direction, in cooperation with the soil resource program.

## 12. SOIL

The goal for the soils program under this Plan is to maintain or enhance the productive properties of the soil resource. This basic goal will be achieved by following Forest-wide Standards and Guidelines for the analysis and implementation of projects in a manner designed to protect soil productivity.

A primary component of the soils program will be to provide technical support to other resource activities at a level of detail sufficient to make management decisions that minimize the potential for damage to the soil resource. It is readily apparent that negative soil impacts (i.e. compaction, displacement, erosion, puddling, etc.) can occur within a very short period of time. However, soil building processes occur very slowly over long periods of time. Soil rehabilitation efforts seldom restore soils to their original condition; therefore, it is better to avoid, wherever possible, management practices that have a negative impact on the soil resources. In many cases, minimizing the amount of land affected by a given management activity, may be the only option available.

Another major emphasis for the soil program will be the completion and update of the Forest Soil Resource Inventory Program and the development of GIS capabilities. By 1992, remapping of the Wenatchee National Forest to the National Cooperative Soil Survey (NCSS) standards for Order II and Order III levels of intensity will be accomplished with the completion of the Naches area survey. The Order II level was used for all NF lands outside of wilderness areas, and the Order III level was used for the less intensively managed lands inside the wilderness areas. Kittitas County soil survey was completed in 1980 under a cooperative agreement with the State of Washington and the Soil Conservation Service. That survey was known as a "land grading soil survey", primarily designed to establish values of private forest lands in the State of Washington. Chelan County was mapped under the Cashmere Mountain cooperative agreement between the SCS, Washington State University, and the Forest Service. This soil survey was completed in May, 1989.

Soil survey maps and the accompanying interpretative information will be an important data layer for the GIS system, because the use and management of many other resources are often affected by soil characteristics. Emphasis will be placed on the input of this information into the GIS system as soon as it becomes available.

Another major component of the soils program will be Forest and project-level monitoring, conducted in cooperation with other resource and management entities. Monitoring will provide feedback for determining if the projects and practices being implemented are meeting management objectives and for identifying corrective action.

The Forest-wide watershed improvement inventory will be reviewed and revised by the end of the 1990 field season. The review and update of this inventory will be done on a district basis. Forest priorities will be re-established and the implementation schedule will be revised. Each district will be responsible for the development and update of rehabilitation plans so that work can be accomplished efficiently as funds become available.

The development of cooperative relationships with State and other Federal agencies, the Yakima Indian Nation, the Confederated Tribes of Colville, and private groups will facilitate the accomplishment of the above goals and objectives. This will be especially important in regards to coordinated resource management planning in watersheds in which resources are at risk.

Coordination of these activities will be facilitated through a Five Year Action Plan designed to provide program direction, in cooperation with the water resource program.

### 13. MINERALS

Because of the nature of the mining and mineral leasing laws, the management of mineral resource activities will continue to be largely reactive in nature. As a consequence, predicting the level of mineral resource activity, outputs and funding levels is difficult. However, some activity levels have been estimated and are shown on Table IV-2, and mineral program funding will be used to accommodate at least that level of activities. This will include but not be limited to; the processing of 35 to 100 leases and permits per year, the processing of and monitoring of 100 to 180 notices of intent and/or plans of operation, and the geologic evaluations needed to accommodate the timber sale programs. As the local, regional and National demand for mineral resources increases, however, it is expected that the mineral related activity conducted on this Forest will also increase. It is also assumed that increased activity will probably accompany any new developments industry makes in exploration, mining or mineral processing technology, or when new information is acquired which indicates that the Forest has a potential for the occurrence of previously unknown mineral resources. If this happens the mineral management funding will have to increase to accommodate the increased activities.

Under this plan, the area withdrawn as Wilderness will not change, and only 2,547 acres (less than 1 percent of the total Forest area) will be proposed as new withdrawals. The only mineral activity that will occur within the withdrawn areas will be limited to that conducted under rights which are confirmed to have existed prior to the date of withdrawal. It is assumed that activity will be relatively negligible. Of the remaining Forest area in which mineral activities will be generally encouraged and facilitated, twenty percent (436,915 acres) will be managed as highly sensitive areas (e.g., experimental forest, old growth dependent species habitat, developed recreation sites, dispersed recreation areas, special areas or as Wild and Scenic rivers), and the remaining will be managed under relatively unrestrictive management direction.

Since the Forest has little influence on the demand for mineral resources and little to do with the technological factors associated with the mining industry, it will have very little actual influence on the amount of activity that is conducted on the Forest. It is assumed that withdrawals and highly restrictive management prescriptions will have some effect on the type of activity that is actually conducted, but predicting what that effect will be is difficult (see Chapter IV of the FEIS). However, using available demand information and past activity as a basis, mineral resource activity and production estimates have been made and are shown on Table IV-2. As this table indicates, the energy mineral related workload will be dominated by the processing of lease applications and the processing of prospecting, exploration and development proposals. Based primarily on past leasing activity and demand projections provided by Donald A. Hull (November 30, 1982), the number of these types of actions is estimated to be about 35 increasing to possibly 60 during the last decade; and that activity may be accompanied by the production from 104 billion BTU's of energy in the first decade to 607 BTU's in the last decade.

Since little information concerning the energy mineral resources of the Forest is available, it is difficult to predict exactly where the activity will occur. However it is assumed that this activity will concentrate primarily on the Naches, Cle Elum and Leavenworth Ranger Districts. It will be dominated by interest in oil and gas resource exploration and development. However, should the energy situation return to that of the 70's, that return could be accompanied by an increased interest in the geothermal and coal resources of the Forest.

As with the energy mineral related activity, the non-energy locatable mineral related workload has been estimated using past activity and anticipated increases in the demand for both precious and base metal resources. This workload will consist of processing notices of intent and plans of operations for proposed prospecting, exploration and development activities, and will also include the conducting of mineral evaluations needed to respond to patent applications, conflicts between mineral resource development and other resource uses, or to proposed land disposal actions. It

appears that most interest will focus on the precious metals (e.g. gold and silver) and possibly on some industrial mineral commodities (e.g., limestone, industrial-grade garnet deposits and some building stone deposits). However, an increase in base metal prices could renew interest in those commodities as well. Estimates of the volume or value of these mineral commodities have not been made.

The demand for common variety mineral resources, especially those associated with Forest road construction activity, is expected to decrease somewhat. However, there may be some increase in the demand for these resources by private industry as is indicated on Table IV-2. This private demand will be primarily for highway construction, building or landscape purposes. However, as with locatable mineral commodities, predicting the future demand for these minerals is very difficult.

#### 14. LANDS

Existing utility corridors will be continued. Capacity would be increased to the degree feasible to accommodate increased energy needs (i.e., 115 KV line might be increased to 230 KV). One potential new corridor is identified. This corridor would utilize a "window" in the Sheets Pass to Pyramid Peak area and then run southeasterly toward Hanford and the Tri-Cities area.

For this Plan, it is estimated that the number of small hydroelectric proposals would be about 25. Three or four of these could be expected to reach the application for license stage.

Landownership guidance is provided in each management prescription. Overall priorities for landownership adjustments are: (1) those that make possible improved resource management, and (2) those that increase management efficiency and reduce management costs.

A landownership classification plan based on the guidance in the prescriptions may be found in the Plan Appendix B.

Additional guidance is to be found in the Chelan, Lake Wenatchee, and Icicle Composite Plans.

#### 15. ROADS

The overall road management and development programs necessary to implement this alternative are as follows.

##### a. Management

The road management strategy in this plan is to reduce the cost and impact of roads, to provide road access to developed sites to a service level comparable with their development level, to correct chronic sediment sources and prevent fish barriers, to maintain the current pattern of dispersed recreation, and to not improve access to wilderness areas to the extent that wilderness values are reduced. In order to implement this plan, the following has been done.

1. The proposed management for all existing Forest Development Roads is documented in the Forest Development Transportation Plan (FDTP). The FDTP includes elements for maintenance, service level, etc., for each individual road on the Forest. In addition, all known Forest roads are shown on primary base series maps at 1:24,000 scale. These maps and inventories, including the bridge inventory, and a map of the Forest Highway system comprise the Forest Development Transportation Plan (FDTP) that is referred to in NFMA.
2. A method for identifying the road management objectives for the new construction and reconstruction is found in FSH 7709. This process (resource elements-design criteria-design standards) is intended to ensure that all new roads are designed and operated to standards that are responsive to the resource objectives of this plan.
3. Table IV-14 identifies the proposed service levels for the arterial and collector system. A map of these service levels and road segments is available in the Supervisor's Office.

**b. Development**

The strategy for development will be to provide local roads as necessary for timber management and resource protection, to reconstruct the arterial and collector system to provide for safe joint use, and to minimize the total cost of operating the existing system by reducing the user and maintenance costs associated with high traffic volumes over gravel surfaced roads. Following, are the proposed levels of development.

**1. Local Roads**

Approximately 1,468 miles of new road are expected to result from the implementation of this Plan. Some 706 miles of this are in areas that are currently unroaded, but allocated to timber harvest prescriptions in this Plan. It is assumed that the majority of this construction will occur in the next 18 years. Most new roads will be closed after timber management activities unless there is an overriding need to keep them open.

**2. Arterial/Collector Roads**

The proposed construction and reconstruction of the arterial and collector system to meet the resource objectives of this plan are found on Table IV-14. It is estimated that 18 miles will be constructed, and 162 miles will be reconstructed at an average annual rate of 18 miles a year for the next 10 years.

**3. Issue Roads**

The Forest Service has no need of a road across Naches Pass for management purposes and has no plans to construct such a road. However, land allocations in the "pass area" do not preclude roading and the possibility exists that another government agency or private entity could propose a road through the pass, although, there are no proponents at present. Any road project proposal of this nature would be subject to the appropriate site-specific environmental analysis, including public involvement and proper documentation.

**15. FACILITIES**

The Facilities Master Plan identifies Forest facilities needs and sets priorities to construct or reconstruct buildings and utility systems in order to provide facilities which are safe, efficient, cost effective, and attractive. Due to the significant increase in permanent employees in the past 3 years, many of the existing administrative facilities on the Forest are not adequate to meet current needs. The most critical facilities needed currently and for the next 10 years include increased office space, adequate housing for temporary employees, and renovation of public contact areas.

**TABLE IV-14  
PROPOSED SERVICE LEVELS FOR ARTERIALS AND COLLECTORS**

Road Name and Number	Road Miles	Current Service Level/	PROPOSED				Remarks	
			SL	Const		Reconst		
				Mi	M \$	Mi	M \$	
ENTIAT VALLEY 5100	5.1	D	B			5.11	250	RECREATION ROAD
ENTIAT VALLEY 51	10.1	A						
ENTIAT SUMMIT 5200	35.9	D						
TYEE RIDGE 5700	15.8	C	B			4.0	100	ASPHALT SURFACE
FRENCH CORRAL 5800	9.0	C						
SHADY PASS 5900	24.1	D	C			15.8	725	PROVIDE SAFE JOINT USE
LOWER CHIWAWA 6100	4.1	C						
DEEP CREEK 6101	3.1	C						
DEEP CREEK 6101	2.6	D						
CHIWAWA 62	8.4	A						
CHIWAWA 6200	1.5	B						
CHIWAWA 6200	11.5	D	C			4.0	500	RECREATION ROAD
BIG MEADOW CREEK 6300	4.3	B						
BIG MEADOW CREEK 6300	5.4	C						
WEST CHIWAWA 6306	7.6	D	C	5.0	250	3.6	135	TIMBER ACCESS
WHITE RIVER 6400	4.0	D						
LITTLE WENATCHEE 65	6.9	B						
LITTLE WENATCHEE 6500	5.2	C						
LITTLE WENATCHEE 6500	2.4	D						
RAINY CREEK 6700	13.5	C	B			1.1	61	ASPHALT SURFACE
LABYRINTH MOUNTAIN 6701	4.6	C	B			4.6	255	ASPHALT SURFACE
MISSION CREEK 7100	12.7	D	C			12.7	315	SAFE JOINT USE
CAMAS LAND 7200	5.8	C						
MTN. HOME RANCH 7300	11.0	D						
BLEWETT ROAD 7320	6.0	B	B			6.0	120	SEAL COAT
VAN CREEK 7520	5.9	C						
ICICLE 76	8.6	A						
ICICLE 7600	5.8	C	A			4.6	400	RECREATION ROAD
COOPER MOUNTAIN 8020	21.1	D						
ANTOINE 8140	10.6	C						
GRADE CREEK 8200	39.1	D	D			4.2	205	RECREATION ROAD
LIBERTY-BEEHIVE 9712	22.4	D	C			2.1	100	RECREATION ROAD
LIBERTY-BEEHIVE 9712	10.6	C						
DERBY 7400	13.0	C	A			0.7	100	SAFE JOINT USE
TIETON 12	17.4	A	A			1.0	400	COOP WITH YAKIMA CO
NACHES PASS 19	14.7	A						
NACHES PASS 19	1.6	C						
N F TIETON 1207	5.2	C						
WILDCAT 1306	0.7	B						
WILDCAT 1306	3.1	C						
OAK CREEK 1400	12.8	C						
BETHEL RIDGE 1500	7.7	B						

**TABLE IV-14 (continued)**  
**PROPOSED SERVICE LEVELS FOR ARTERIALS AND COLLECTORS**

Road Name and Number	Road Miles	Current Service Level1/	PROPOSED				Remarks	
			SL	Const.		Reconst		
				Mi	M \$	Mi	M \$	
BETHEL RIDGE	1500	18.0	C					
BETHEL RIDGE	1500	3.0	D	C		3.0	200	RECREATION ROAD
S.F. TIETON	1000	5.8	B					
S.F. TIETON	1000	7.7	C	B		7.3	960	ASPHALT SURFACE
LOST LAKE	1201	4.9	B					
LOST LAKE	1201	2.6	C					
DEVIL'S CANYON	503	3.4	B					
DEVIL'S CANYON	1503	4.4	C					
BUMPING LAKE	18	10.9	A					
BUMPING LAKE	18	6.9	C	B		0.3	40	ASPHALT SURFACE
LITTLE RATTLESNAKE	1501	5.5	B					
LITTLE RATTLESNAKE	1501	4.8	C					
NILE LOOP	1600	6.1	C	C		6.1	400	SAFE JOINT USE
NILE LOOP	1600	18.5	C	B		3.0	250	ASPHALT SURFACE
ROCK CREEK	1702	11.3						
ROCK CREEK	1702	0.5	B					
MILK CREEK	1708	8.1	C					
DEVIL CREEK	1709	8.6	C					
SWAMP CREEK	1706	9.2	C					
RIGHT HAND	1720	5.2	C					
RAVEN'S ROOST	1902	15.8	C					
MANASTASH DR	3100	10.5	B	B		10.5	115	COST SHARE RSR
MANASTASH DR	3100	2.3	D	C		2.3	30	MINOR RECONSTRUCTION
MANASTASH DR.	3100	2.2	C					
MANASTASH DR	3100	4.0	D					
TANEUM	33	6.8	B	A		6.8	270	ASPHALT SURFACE
TANEUM	3300	1.4	A					
TANEUM	3300	12.4	C					
CABIN CREEK	4100	1.7	A					
CABIN CREEK	4100	13.4	B	B		6.4	80	COST SHARE RSR
STAMPEDE PASS	5400	3.7	B					
STAMPEDE PASS	5400	1.1	A					
KACHESS	4900	2.0	A					
COOPER	4600	4.8	A					
COOPER	4600	4.8	C	C		2.2	25	COST SHARE RSR
TABLE MOUNTAIN	3500	9.0	B					
TABLE MOUNTAIN	3500	3.1	C					
TABLE MOUNTAIN	3500	4.2	D	C		4.2	50	MINOR RECONSTRUCTION
COW CAMP	3111	3.6	C					
COW CAMP	3111	3.0	D	C		3.0	40	MINOR RECONSTRUCTION
TAMARACK SPRS.	3120	6.4	C	C		2.1	22	COST SHARE RSR
TAMARACK SPRS.	3120	0.2	D	C		0.2	4	MINOR RECONSTRUCTION

TABLE IV-14 (continued)

**PROPOSED SERVICE LEVELS FOR ARTERIALS AND COLLECTORS**

Road Name and Number	Road Miles	Current Service Level1/	PROPOSED					Remarks
			SL	Const.		Reconst		
				M <sub>1</sub>	M \$	M <sub>1</sub>	M \$	
GNAT FLAT 3330	8.5	C						
S CLE ELUM RIDGE 3350	11.1	C	C			7.7	85	COST SHARE RSR
LOG CREEK 4110	11.3	C	C			4.1	45	COST SHARE RSR
LOG CREEK 4110	0.4	D	C			0.4	5	MINOR RECONSTRUCTION
YAKIMA PASS 5480	1.7	B						
YAKIMA PASS 5480	5.7	C						
COLD CREEK 9070	5.6	C	C			4.2	50	COST SHARE RSR
KEECHELUS FRNT 4832	2.0	A						
KEECHELUS FRNT. 4832	7.5	C						
KEECHELUS RIDGE 4934	9.3	C						
GALE CREEK 4948	6.7	C						
BOX CANYON 4930	4.1	C						
BOX CANYON 4930	1.6	D						
THETIS CREEK 4936	4.0	C						
THETIS CREEK 4936	0.4	D						
EAST KACHESS 4818	6.8	C	C	3.8	150			TIMBER ACCESS
FRENCH CABIN 4308	7.4	C						
FRENCH CABIN 4308	2.0	D	C			2.0	30	
LITTLE SALMON LASAC 4315	5.3	C						
STAVE CREEK 4613	5.7	C						
CLE ELUM VALLEY 4330	0.2	B						
CLE ELUM VALLEY 4330	13.0	C						
N. FORK TEANAWAY 9737	10.0	C	C			10.0	575	RECREATION ROAD
BLUE CREEK 9738	7.0	B	B			7.0	80	CHIP SEAL
BLUE CREEK 9738	7.6	C						
BLEWETT 7320	4.1	B						
HURLEY CREEK 9711	6.6	C						
COUGAR GULCH 9718	5.7	C						
SWAUK MEADOWS 9716	3.8	C						
POLE PATCH 3507	6.7	B						
TACOMA PASS 4112	1.3	C						
S FK. TANEUM 3320	0.0	C	C	9.0	500			TIMBER ACCESS

## **E. FOREST-WIDE STANDARDS AND GUIDELINES**

These Forest-wide Standards and Guidelines when used in conjunction with the management prescriptions for the management areas, state the bounds or constraints within which all practices will be carried out in achieving the planned objectives. They are intended to be used with national and regional policies, standards and guidelines contained in Forest Service manuals and handbooks, and the Pacific Northwest Regional Guide.

### **RECREATION**

#### **Recreation Planning and Inventory**

1. Develop management plans for newly classified special areas.
2. Review Recreation Composite, Forest Trail and ORV Plans annually for adequacy, and update as needed.
3. Visual quality objectives shown represent *minimums, higher ones may be achieved.*
4. Mitigation measures to reduce the visual impacts upon the landscape will be considered and used to meet the visual quality objective.
5. Harvest units must be located and designed to blend with the natural landscape character to the extent practicable.
6. Evaluate the visual absorption capacity (a function of: slope, vegetative character, soil color contrast, productivity) and apply landscape architectural design arts principles in land form manipulation and vegetation management.
7. Landscape architectural concepts will be used to design and blend structural elements (buildings, fences, poles, utility lines, culverts, bridges, microwave towers, roads, trails, etc.) into the landscape to meet visual quality objectives.

8. Design roads, waterways, and trail systems to be consistent with adopted Recreation Opportunity Spectrum class and Visual Quality Objectives indicated by the management prescriptions.

9. Manage the setting of Forest openings such as meadows, lakes, ponds, and reservoirs in a manner to retain their natural appearing character.

10. Rehabilitation actions will be planned and scheduled in management areas where the existing visual condition does not meet the adopted visual quality objective.

11. Update the Forest Existing Visual Condition (EVC) and Visual Quality Objective (VQO) mapping every five years, in the Forest database or in a Geographic Information System (GIS).

12. Evaluate existing developed and dispersed recreation sites to determine if they meet present and future public expectations, needs, and desires, and if they have the resource capability of sustaining present or future levels of visitor use.

13. Recreation facility development or improvement planning will conform to and be consistent with the applicable ROS Class criteria for level and scale of development, setting, experience level, and social interaction.

14. Recreation site or dispersed area planning on a site specific or area basis will be done through the Environmental Analysis process in accordance with ROS Class criteria, visual quality objectives and other applicable management objectives.

15. Plan new developed and dispersed winter recreation opportunities in response to the growing demand for winter sports areas and developed facilities. Seek maximum opportunities for partnerships and joint ventures with private developers and other agencies in providing recreation development.

16. Complete area wide or composite recreation management plans for logical planning areas where:

- A. Conflicting uses and activities are creating Forest-level issues and controversies.
- B. Major construction or reconstruction of developed sites and facilities is necessary, and recreation uses and activities need to be coordinated.
- C. Multiple activities and use patterns have created highly complex situations needing careful detailed planning.

17. Evaluate selected scenic travel viewsheds for possible future nomination and/or designation as National Forest Scenic Byways.

18. Complete and maintain a cultural resource overview of the Forest. The overview should summarize all previously recorded cultural resource information for the Forest; provide a framework for evaluating cultural resources identified through the inventory process; develop a preliminary research design to guide future surveys, inventories, and scientific investigations; and identify opportunities for interpretation of a range of cultural properties.

19. Conduct cultural resource inventories (survey and site recordation) according to strategies and consultation procedures established on the Forest. Emphasis will be given to all areas where ground disturbing activities are planned, to ensure discovery of all reasonably locatable cultural resources. These inventories should be supervised by a cultural resource professional.

There are also substantial inventory needs on those Forest acres (such as wilderness) that are not affected by anticipated project activities. Priorities for non-project related inventory will be:

- A. Areas experiencing degradation through natural processes or intensive public use.
- B. Areas of reported but unverified sites.
- C. Areas where cultural resources are highly probable as determined by known land use patterns, terrain features, resource distributions, and the nature and extent of previous landscape modifications.

20. Develop management plans, in consultation with the Washington State Historic Preservation Office (SHPO), for all sites listed in the National Register of Historic Places. These plans should specify measures to protect and maintain the cultural integrity of the sites, objectives for management of the visual setting, levels and types of other resource uses compatible with the historic values of the sites, an interpretive design if so desired, and a program to carry out the objectives of the plan. Adaptive or compatible modern uses of historic properties, such as use as Forest Service administrative facilities or under special use permit with protective stipulations, should be encouraged.

### Cultural Resources Evaluation and Assessment

1. Evaluate the significance of inventoried sites by applying the criteria for eligibility to the National Register of Historic places. Sites may be treated as individual properties, thematic groups, or historic districts. Efforts should be made to look at the local or regional context of the cultural resource and to determine the relationship of the property to others within the same historic context and/or specified geographic area. Give priority to those properties that may be affected by project activities. Develop a plan to evaluate all other cultural resources through cost effective means as the Forest-wide inventory nears completion.

2. Nominate cultural resources that meet the appropriate criteria for eligibility to the National Register of Historic Places. Nominations will be scheduled incidentally until completion of the Forest-wide inventory of cultural resources.

3. Consider the effects of all Forest Service undertakings on significant cultural resources, and assure the development of measures to avoid or mitigate any adverse effects.

**Cultural Resource Protection and Enhancement**

1. Develop measures, in consultation with the Washington State Historic Preservation Office (SHPO) and, if necessary, the Advisory Council on Historic Preservation (ACHP), to protect significant sites from adverse effects due to project activities. These measures may range from complete avoidance of the site and corresponding protection of its environmental setting, to mitigation procedures which conserve the historic values of the resources. American Indian religious values are also important elements to be considered when addressing decisions as to site preservation, protection, or alteration/removal. Among alternatives to consider are:

A. Adjustment of project boundaries to ensure complete avoidance of the site as well as protection of its environmental setting, where necessary.

B. Adoption of methods or techniques that will minimize disturbance to the site and its environmental setting.

C. Meeting "The Secretary of the Interior's Standards for Historic Preservation Projects" for projects involving historic structures.

D. Removal of the cultural property (historic) to another appropriate location after documentation of the property in place.

E. Mapping, photo-documentation and scaled drawings of historic properties before proceeding with project implementation.

F. Excavation of archaeological sites utilizing a professionally sound research design in keeping with the State-wide research plan, and carried out in consultation with interested American Indian groups. Such excavation would be undertaken through contract.

2. Protect eligible cultural resources from degradation due to public use and natural deterioration. Protection plans may include, but are not limited to, scientific study and collection, the use of fences and barriers, proper use or removal of signs, stabilization techniques, closure orders,

patrol and site monitoring, maintaining site anonymity, and gaining public understanding and support through education.

3. Buildings listed on the National Register of Historic Places or buildings eligible for listing, will be maintained to the maximum extent practical.

4. Provide opportunities for scholarly/scientific use of designated prehistoric and historic sites. This may require "banking" of sites for future use, coordination with American Indian groups, and processing of antiquities permits for testing and excavation of sites by qualified professionals.

5. Apply the SI-2 prescription to future cultural properties based on National Register eligibility, scientific values, and/or American Indian concerns.

6. Interpret suitable cultural resource properties for the recreational use and educational benefit of the general public. The measure of suitability should be based on accessibility to the public, feasibility for protection, condition of the property, compatibility with other resource management activities within or adjacent to the area, thematic representation, and value to public groups. Interpretive services and facilities should be compatible with the nature, quality, and integrity of the cultural sites selected for enhancement. Preferred methods include brochures, signs, and self-guided tours. Handicapped access to interpreted sites should be provided wherever practicable. Coordination with the American Indian community and involvement of interested volunteer groups and appropriate educational institutions will be encouraged.

**Recreation Facility and Site Reconstruction**

1. Prior to converting a qualifying campground to a fee site designation or expending capital investments to convert unqualifying campgrounds to fee site standards through reconstruction, an analysis will be made to assure such a conversion is justified. Some basic considerations to be used are: public demand, current and 10-year projected use, and other recreation facilities and opportunities present in the general area.

## STANDARDS AND GUIDELINES

2. Recreation site reconstruction and improvement will be accomplished through partnerships and cooperative ventures to the maximum extent possible.

3. Recreation site reconstruction will be completed to high quality standards in harmony with development scale of the site, ROS Class, and public desires and expectations for the site.

### Recreation Facility and Site Construction

1. New campground development will generally be constructed to full service standard and to the development scale level and the Recreation Opportunity Spectrum Class criteria that is appropriate for the site considering its location and setting.

2. Construction of new sites will be based on an analysis of user demand, use of currently available facilities, projected future demands, and expressed public interest.

### Recreation Facility and Site Management

1. Manage recreation sites to provide a high degree of security, safety, and sanitary conditions for recreation visitors.

2. Provide high quality maintenance of facilities that assures a positive public image and a high degree of visitor satisfaction.

3. Keep abreast of visitor's needs and desires at recreation sites and adjust management programs to meet these needs.

### Visitor Use Administration

1. Information programs such as recreation reports, news releases, radio and television reporting, video productions, and information tours will continue to be emphasized as means to keep the public informed of management activities.

2. Contacts with the public will anticipate management problems. Contacts will be based on

high quality public service and positive and effective communication. Contacts will seek to improve user land use ethics, encourage "light on the land" use techniques, and minimize conflicts.

3. Regulations to restrict or limit use will be employed only after all reasonable means have been exhausted to resolve conflicts between users and user groups.

4. Regulations and restrictions on Forest visitors will be well coordinated between Districts and adjacent Forests to avoid unnecessary contradiction or needless public confusion. However, logical deviation and flexibility will be maintained in user administration.

5. Incorporate interpretive and outdoor environmental education programs into activities available at appropriate developed sites.

### Trail Reconstruction

1. Trail reconstruction will be accomplished in accordance with established objectives for each trail.

2. Meet visual management objectives and applicable ROS Class criteria in reconstruction design to assure appropriate recreation experience of the trail.

### Trail Construction

1. Construct new trails to meet specific recreation management objectives, provide additional opportunities, solve user conflicts, and meet public demand where development of new trails is compatible with other land uses.

2. Newly constructed trails will meet visual management objectives and applicable ROS Class criteria for the areas accessed by the trails.

3. Design trails to provide a variety of recreation experiences as well as to access destinations or complete loop opportunities.

4. Plan the development and location of winter trails for snowmobile, cross-country skiing, snowshoeing, dog sledding, etc., to coordinate

with other resource values, management activities, and various management prescription criteria.

### Trail System Maintenance and Operation

1. The Forest trail system will provide for use by all specified modes of transportation as contained in the management prescriptions.
2. Trail closures will be made only where needed to minimize disturbance to wildlife; prevent user conflicts; to protect soil, water, visual, vegetative, and cultural resources; control heavy use or to meet legislative requirements; and provide for public safety.
3. Trail maintenance will be performed to a standard or level that is compatible with established trail objectives for that trail and in conformity with ROS Class criteria.
4. All trails in the system will be protected from impact, or restored to at least the pre-existing condition, from all Forest management activities. Trails may be bisected by new road construction when no reasonable alternative exists, but mitigation will be completed to restore the usability of the trail.
5. Winter trails will be added to the system, and receive protective mitigation considerations equal to the summer Forest Trail System.
6. In trail system planning and inventory, establish objectives for each system trail identifying purpose, intent, or role of the trail, opportunities provided by the trail, use levels, and public expectations of the trail. Use trail objectives as a guide in construction or reconstruction planning and in establishment of maintenance levels.

## WILDERNESS

### Wilderness Recreation Opportunity Spectrum Classes

The Wilderness Recreation Opportunity Spectrum (WROS) provides a way to describe the variations in the degree of isolation from the sounds and influences of people, and the amount of recreation visitor use. There are four WROS classes; Pristine, Primitive, Semi-Primitive, and Transition.

#### 1. Pristine

The area is characterized as an extensive, unmodified, natural environment. Natural processes and conditions have not been measurably affected by the actions of users. The area will be managed as free as possible from the influences of human activity. Terrain and vegetation allow extensive and challenging cross-country travel.

#### a. Physical-Biological Standards

##### (1) Vegetation

- (a) Area of vegetation loss, and compacted bare mineral soil at any campsite, should not exceed 225 square feet.
- (b) Trampled area of vegetation with season recovery should not exceed 400 square feet.
- (c) No loss of trees, or trees with exposed roots at any campsite.
- (d) No noticeable modifications of natural plant succession due to stock grazing or human activity.
- (e) No loss of dead trees or noticeable loss of dead, woody debris due to campfires.

(2) *Soils*

(a) Displacement and erosion of soil resulting from human activity will be limited to a rate that approximates the natural process.

(b) Soil compaction should not occur in this class outside existing established campsites.

(3) *Water Quality*

There should be no measurable change in water quality due to human activity.

(4) *Air Quality*

Air quality will not be degraded as a result of campfire smoke, or Forest Service Management activities outside of wilderness in Class I areas.

(5) *Fish and Wildlife*

Visitor use shall seldom and only temporarily displace wildlife populations.

(6) *Scenery*

(a) No campsites should be visible from any other campsite.

(b) Human activity inside Wilderness should remain subordinate in foreground viewing and not be recognizable in middle-ground viewing areas.

(7) *Livestock Allotment*

This class should not include commercial livestock allotments so that the area is free as possible from human influences and to maintain the total integrity of natural ecological processes.

b. Social Standards

(1) *Encounters*

There should be an 80 percent probability that not more than one individual or party will be encountered per day during the primary use season.

(2) *Party Size*

The maximum party size shall not exceed a combination of 12 people and/or livestock, (12 people and 18 animals in the Lake Chelan-Sawtooth Wilderness). A total of not more than six people will be encouraged in this class, and use of stock will not be encouraged for cross-country travel.

(3) *Campsites*

There shall be no other campsites visible or audible from any campsite. New user developed campsites will not be allowed to become established. When found, fire rings and tent frames will be disassembled and dispersed.

(4) *Pets*

Pets must be under reliable voice control or physical restraint. Pets may be banned from this class for protection of wildlife or to avoid other resource impact.

c. Managerial Standards

(1) *Regulations and Information*

(a) Posting of information and regulations regarding this class will be located at trail-heads.

(b) Formal orders and permits may be required to achieve management objectives in this class.

(c) Ranger patrols and administrative contacts should be rare in this class and kept to the minimum necessary to meet management objectives.

(d) Signs will generally not be present, but may be used in rare circumstances to protect Wilderness resources.

(e) Recreation visitor travel routes will not be readily noticeable or may appear to be wildlife trails.

**(2) Trails**

There shall be no system trails in this class. User travel should be managed so that travel routes are not readily apparent or appear to be wildlife trails.

**(3) Resource Protection Facilities**

Facilities such as stock holding corrals are not appropriate in this class. Areas receiving visitor use numbers sufficient that facilities are necessary to protect resources should not be classified Pristine, or use should be controlled to maintain pristine conditions.

Temporary signs may be necessary to inform visitors of soil and vegetation rehabilitation projects.

**2. Primitive**

The area is characterized by an essentially unmodified, natural environment. Concentrations of visitors are low and evidence of human use is minimal. The area has high opportunity for isolation, solitude, exploration, risk, and challenge.

**a. Physical-Biological Standards**

**(1) Vegetation**

(a) Area of vegetation loss, and compacted bare mineral soil at any campsite should not exceed 400 square feet.

(b) There should be no loss of trees at any site and fewer than four trees with exposed roots per impacted site.

(c) No noticeable, long-term modification of natural plant succession as a result of livestock grazing or human activity.

(d) Dead trees or dead, woody debris may be utilized for campfires in amounts that can be replaced annually through natural accumulation.

**(2) Soils**

(a) Displacement and erosion of soil resulting from human activity will be limited to a rate that approximates natural processes.

(b) Soil compaction should not exceed limits which will prevent natural plant establishment and growth except at well established campsites.

**(3) Water Quality**

There should be no change in water quality except for temporary changes that return to normal when activity ceases.

**(4) Air Quality**

Air quality will not be degraded as a result of campfire smoke, or Forest Service Management activities outside of wilderness in Class I areas.

**(5) Fish and Wildlife**

Visitor use may temporarily displace wildlife, but should not displace wildlife from critical habitat during critical periods. (Such as fawning and winter range.)

**(6) Scenery**

(a) Campsites will occasionally be visible from other campsites.

(b) Human activity should remain subordinate in foreground viewing and not recognizable in middle-ground viewing.

STANDARDS AND GUIDELINES

(7) *Livestock Allotments*

Commercial livestock is permitted in this class under approved management plans to the extent that this use is compatible with Wilderness resource values.

b. Social Standards

(1) *Encounters*

There should be an 80 percent probability that not more than either seven parties or seven individuals traveling alone will be encountered per day during the primary use season.

(2) *Party Size*

The maximum party size shall not exceed 12 people and/or livestock combined, (12 people and 18 animals in the Lake Chelan-Sawtooth Wilderness).

(3) *Campsites*

There shall be no more than one campsites visible or audible from any campsite, or closer than 500 feet in open country.

(4) *Livestock*

Grazing stock is permitted except in established camp areas. Repeated stock use in cross-country travel by a single route shall be discouraged.

(5) *Pets*

Pets must be under reliable voice control or physical restraint. Pets may be banned from this class for protection of wildlife or to avoid other resource impact.

c. Managerial Standards

(1) *Regulations and Information*

(a) Posting of information and regulations regarding this class will be located at trail-heads.

(b) Formal orders and permits may be required to achieve management objectives in this class.

(c) Ranger patrols and administrative contacts will occur periodically. Personnel involved in project work or monitoring will be present. Management personnel should conform to party size limitations and social standards for this class.

(d) Signs will be kept to the minimum to protect Wilderness resources. No signs will be provided to indicate destinations.

(e) Visitor travel routes may be noticeable, but should appear as wildlife trails.

(2) *Trails*

System trails are present in this class generally at low density. Some user developed trails may exist, but are not encouraged for use and rarely upgraded to system trails. If user-developed trails become well established, management action should be taken to rehabilitate damage and discontinue use. Reroutes of existing trails may be done to protect resources or to meet wilderness objectives. New trail construction in trailless drainages or to new destinations must be considered in the Forest Planning process.

(3) *Resource Protection Facilities*

Facilities that are essential for resource protection and visitor safety are appropriate in this class. Only native or natural appearing construction materials will be used. There will be no facilities provided for user comfort or convenience.

### 3. Semi-Primitive

The area is characterized by a predominantly unmodified environment of at least moderate size. System trails and campsites are present and there is evidence of other uses. A minimum of on-site controls and restrictions are implemented to protect physical, biological, and social resources. Some facilities may be present to reduce visitor impact.

#### a. Physical-Biological Standards

##### (1) *Vegetation*

(a) Area of vegetation loss, and compacted bare mineral soil at any campsite, should not exceed 625 square feet.

(b) There should be no loss of trees at any site and only six trees per site with roots exposed or which show signs of human use impact.

(c) There should be no long-term modification of plant succession and only short-term modification due to human activity or livestock grazing that can recover in one growing season.

(d) Dead trees or dead, woody debris may be utilized for campfire wood in amounts that can be replaced annually through natural accumulation.

##### (2) *Soils*

(a) Displacement and erosion of soil resulting from human activity will be limited to a rate that approximates natural processes.

(b) Soil compaction should not exceed limits which will prevent natural plant establishment and growth, except at desired campsites, and in designated trail treads.

##### (3) *Water Quality*

There should be no change in water quality except for temporary changes that return to normal when activity ceases.

##### (4) *Air Quality*

Air quality will not be degraded as a result of campfire smoke or Forest Service Management activities outside of wilderness in Class I areas.

##### (5) *Fish and Wildlife*

(a) Visitor use should not displace wildlife from critical areas during critical periods.

(b) Riparian areas should appear to be unchanged by human or livestock use.

(c) Displacement of wildlife due to visitor use may be significant but should be of short duration to assure a natural ecosystem is maintained. Visitor use should not decrease habitat effectiveness for one species more than 20 percent.

##### (6) *Scenery*

(a) Campsites will be visible at times from other campsites.

(b) Human activity in wilderness, should remain generally subordinate in foreground viewing and not recognizable in middle-ground viewing.

##### (7) *Livestock Allotments*

Commercial livestock is permitted in this class under approved management plans to the extent that such use is compatible with all resource values.

#### b. Social Standards

##### (1) *Encounters*

There should be an 80 percent probability that not more than either ten parties or ten individuals traveling alone, will be encountered per day during the primary use season.

STANDARDS AND GUIDELINES

(2) *Party Size*

The maximum party size shall not exceed 12 people and/or livestock combined, (12 people and 18 animals in the Lake Chelan-Sawtooth Wilderness).

(3) *Campsites*

There shall be no more than two campsites visible or audible from any campsite, or closer than 500 feet in open country.

(4) *Livestock*

Grazing of stock is permitted except in established camp areas.

(5) *Pets*

Pets must be under reliable voice control or physical restraint. Pets may be banned from this class for protection of wildlife or to avoid other social or biological impact.

c. Managerial Standards

(1) *Regulations and Information*

(a) Posting of information and regulations regarding this class will generally be done at trailheads. Some regulatory signing may be posted at key locations such as lakeshores and campsites to help gain user compliance.

(b) Formal orders and permits may commonly be used to achieve management objectives in this class.

(c) Ranger patrols and administrative contacts will occur more frequently in this class, particularly at popular destination points and on weekends during the primary visitor use season. Personnel involved in project work or monitoring activities will be present. Major work projects should be planned as much as possible during low visitor-use periods. Management personnel should conform to party size limitations and be aware of their potential to impact visitor experiences.

(2) *Trails*

The managed trail system should be maintained or constructed toward more and most difficult trail standards (FSH 2309.18). However, trails classified easiest may exist in areas of gentle terrain and valley bottoms. A variety of user restrictions may be implemented to resolve negative resource impacts.

(3) *Resource Protection Facilities*

Facilities will be as natural appearing as possible or will be constructed out of native material. No facilities will be constructed for user convenience or comfort. Facilities will be placed so as to concentrate heavy impact on areas previously impacted and on sites capable of withstanding high impacts.

4. Transition

The area is characterized by a predominantly unmodified environment, however, the concentrations of visitors may be moderate to high at various times. The area is characterized as having a large number of day users who are often mixed with overnight and long-distance travelers on trails near trailheads and wilderness boundaries.

a. Physical - Biological Standards

(1) *Vegetation*

(a) Area of vegetation loss, and compacted bare mineral soil at any campsite, should not exceed 1000 square feet.

(b) There should be no loss of trees at any site and only ten trees per site with roots exposed or which show signs of human use impact.

(c) There should be no noticeable long-term modification of plant succession and only short-term modification due to human activity or livestock grazing, that can recover in one growing season.

(d) Dead trees, or dead woody debris, may be utilized for campfire wood in amounts that can be replaced annually through natural accumulation.

(2) *Soils*

(a) Displacement and erosion of soil resulting from human activity will be limited to a rate that approximates natural processes.

(b) Soil compaction should not exceed limits which will prevent natural plant establishment and growth, except at desired campsites, and on designated trail treads.

(3) *Water Quality*

There should be no change in water quality except for temporary changes that return to normal when activity ceases.

(4) *Air Quality*

Air quality will not be degraded as a result of campfire smoke, or Forest Service Management activities outside of Wilderness in Class I areas.

(5) *Fish and Wildlife*

(a) Visitor use should not displace wildlife from critical habitat areas during critical periods. If conflicts occur, management actions should be implemented to reduce the impact.

(b) Riparian areas should appear to be unchanged by human or livestock use.

(c) Displacement of wildlife due to visitor use may be significant but should be of short duration to assure a natural ecosystem is maintained. Visitor use should not decrease habitat effectiveness for one species more than 20 percent.

(6) *Scenery*

(a) Campsites will be visible at times from other campsites.

(b) Human activity should remain generally subordinate in foreground viewing and not recognizable in middle-ground viewing.

(7) *Livestock Allotments*

Commercial livestock is permitted in this class under approved management plans to the extent that grazing use is managed to protect wilderness resource values.

b. Social Standards

(1) *Encounters*

There should be an 80 percent probability that not more than either 10-20 parties or 10-20 individuals traveling alone, will be encountered per day during the primary use season. Generally encounters should not exceed 10, however, in unique situations, encounters may reach 20 per day.

(2) *Party Size*

The maximum party size will not exceed 12 people and/or livestock combined, (12 people and 18 animals in the Lake Chelan-Sawtooth Wilderness).

(3) *Campsites*

There shall be no more than three campsites visible or audible from any one campsite, or closer than 500 feet in open country.

(4) *Livestock*

Grazing of stock is permitted except in camp areas.

**(5) Pets**

Pets must be under reliable voice control or physical restraint. Pets may be banned from this class for protection of wildlife or to avoid other biological or social impact. Visitors will be encouraged to leave pets at home in areas of higher visitor use.

**c. Managerial Standards**

**(1) *Regulations and Information***

(a) Posting of information and regulations will generally be posted at trailheads but some regulatory signing may be necessary in key impact areas, or areas where there is potential for use conflicts.

(b) Formal orders and permits will commonly be used to achieve management objectives and visitor compliance in this class.

**(2) *Administrative Presence***

(a) Ranger patrols and administrative contacts will occur most frequently in this class, particularly in high day-use areas and popular destination points. Personnel involved in project work and monitoring activities will be present.

(b) Work projects should be planned to be completed during low visitor use periods to minimize impact on visitors.

(c) Management personnel should conform to party size limitations and be aware of their potential to impact visitor experiences.

**(3) *Trails***

The managed trail system should be maintained or constructed toward more and most difficult trail standards (FSH 2309.18). Trails classified easiest may exist in areas of gentle terrain and valley bottoms. A variety of user restrictions may be implemented to resolve negative resource impacts.

**(4) *Resource Protection Facilities***

Facilities will be natural appearing or will be constructed out of native material. No facilities will be constructed for user convenience or comfort. Facilities will be placed so as to concentrate heavy impact on areas previously impacted and at sites capable of withstanding high impacts.

**Limits Of Acceptable Change**

Table IV-15 lists the key indicators that will be measured in monitoring the physical, biological, and social conditions and the standards for each Wilderness Recreation Opportunity Spectrum Class.

**TABLE IV-15**  
**LIMITS OF ACCEPTABLE CHANGE STANDARDS**

Indicators	Pristine	Primitive	Semi-Primitive	Transition
Vegetation loss and bare, compacted mineral soil at campsites (square feet)	225	400	625	1,000
Number of Trees with roots exposed, or percent (whichever is less)	0 0%	4 25%	6 25%	10 50%
Encounters--80% Probability--Maximum number of encounters per day when traveling--primary use season.	1	7	10	10-20 (Generally 10, but up to 20 on a case by case basis )
Party size-- People and stock combined.	12 (Encourage 6 or less people, 0 stock). 12 people and 18 animals in the Lake Chelan Sawtooth Wilderness	12	12	12
Campsites visible when occupied	0	1	2	3
Dead woody debris available for firewood	Appears to be natural levels compared to adjacent similar areas			



**PROPOSED THREATENED,  
ENDANGERED, OR SENSITIVE SPECIES**

(Plants and Animals)

1. Threatened, endangered, and sensitive species will be identified and managed in cooperation with the USDI Fish and Wildlife Service and Washington Department of Wildlife (animals), and Washington Department of Natural Resources and Washington Natural Heritage Program (plants) for all projects.

2. All proposed projects that may involve significant habitat disturbances or changes, or have the potential to alter habitat of threatened, endangered, or sensitive plant and animal species, shall be inventoried to determine if any of these species are present.

3. Biological evaluations that indicate an activity may have an impact on threatened, endangered, and sensitive species should be reviewed with the state agency that is responsible for the species and recommendations considered in finalizing mitigation requirements for a project proposal.

4. Maintain and update lists and maps of plants and animals periodically as new information is collected. Maps will be high quality topographic maps, at 1:24,000 scale or larger. Submit pertinent Forest information to the Regional Office for updating Regional Forester's Sensitive Species lists, and to the appropriate agency for inclusion in state-wide data bases.

5. All Project Environmental Analyses will evaluate the effects of the project on threatened, endangered, and sensitive species.

**Proposed Threatened and Endangered**

1. Habitat for existing Federally classified threatened and endangered species shall be managed to achieve objectives of recovery plans.

2. Where a threatened or endangered species or suitable habitat is present in a project area, follow the Biological Assessment Process and the Consultation Procedures.

**Proposed Sensitive Species**

1. When sensitive species are present in a project area, follow the objectives in the Species Management Guide.

2. Species Management Guides shall be developed for each sensitive species. These plans should be developed on a regular basis by highest priority so that all guides are completed by the tenth year after approval of the Final Forest Plan (approximately six plans per year). Species Management Guides will more specifically identify by species the area to be managed, and contain more information for each species.

Although not protected by the Threatened and Endangered Species Act, sensitive species will receive special management consideration under Forest Service policy. All necessary actions will be taken to assure that management activities do not jeopardize the continued existence of a sensitive species through adverse modification of their essential habitat until their status is determined.

**Plants**

General standards and guidelines for plants are discussed above under the "Threatened, Endangered, and Sensitive Species" section.

Research is done to obtain information about habitat requirements, population biology, genetic variability, reproduction biology, etc. Research projects will be done on a cost-share basis in cooperation with the U.S. Fish and Wildlife Service, the Washington Natural Heritage Program, interested agencies, and private groups. Priorities for research will be developed cooperatively. Generally, the species most threatened will be given highest priority.

All habitat improvement projects for T, E, or S species will be small-scale and experimental in nature until such time as species responses are better understood. When species response to a specific improvements project can be predicted, projects can be larger in scale and practical in nature. Species management guides will be updated every other year.

AnimalsBald Eagle

1. Bald eagles and their habitat shall be protected and managed in accordance with the Pacific States Bald Eagle Recovery Plan. The following are the potential nest sites. Lake Wenatchee 1, Bumping Lake 1, Cle Elum Lake 1, Kachess Lake 1, Lake Chelan 2, Rimrock Reservoir 1, and Wenatchee River 1. Occupied bald eagle habitat will be monitored to determine the effectiveness of planned action and recovery efforts. The location of potential nest sites will be identified before new projects are implemented.

2. Informal consultation shall be initiated with the USDI Fish and Wildlife Service to discuss the question of "effect" when a project involving site disturbance is within one mile of a bald eagle nest (FSM 2670, Bald Eagle Management and Consultation).

3. Within two years of approval of the Forest Plan, prepare a Species Management Guide for the potential bald eagle habitat on the Forest. Consult the Bald Eagle Recovery Plan (Brown 1985), the "Bald Eagle Management Guidelines for Oregon and Washington" (USDI Fish and Wildlife Service 1981), and FSM 2670 for specific management guidelines.

4. Interim requirements for management of bald eagle habitat shall include completion of Bald Eagle Management Area (BEMA) plans for each nesting, foraging and roosting area.

5. Active bald eagle nest sites shall be protected. Manage each area under the territory zone concept until a BEMA plan is completed and the management area is established (Brown, 1985)

A. Primary zone. The primary zone will be not less than 1/4 mile from the nest, with actual size and shape of zone adjusted to include all the area near the nest tree that is actually utilized. Zone size can vary, reflecting local topography, potential for blowdown, and location of important habitat components. There will be no timber harvesting in the primary zone unless designed to enhance stand characteristics for the benefit of nesting eagles. Human activities in

the primary zone will be controlled year-round to insure that the site remains suitable as nesting habitat.

B. Secondary zone. The secondary zone extends from the primary zone out to a minimum of 800 meters from the nest; it minimizes disturbance and protects the primary zone. Zones need not be circular, but will reflect local physiographic conditions and the tolerance of the nesting pair to disturbance factors (Brown 1985). The width of the zone could be considerably wider, depending on the degree to which vegetation or topography screens the nest from potential disturbance. The zone will contain important roosting sites, perching sites, and alternative nest sites. Timber may be harvested in the secondary zone, provided eagle habitat requirements take precedence. Human activity in the secondary zone will be controlled only during the period when the birds are present, normally between January 1 and August 31.

6. Feeding and Roosting Sites. Regularly used feeding and roost sites shall be protected. Human activities will be controlled if they adversely affect the eagles use of a feeding area. Only those Forest practices that maintain the suitability of the area for eagle roosting will be used. The area encompassed will have at least a 400 meters radius, possibly up to a one-fourth mile radius.

7. Maintenance of Potential Nesting Habitat. Forest lands within one mile of foraging habitat (such as anadromous fish streams and lakes over 50 acres in size) are potential bald eagle nesting habitat. Potential nest sites will be surveyed for active nest sites.

Peregrine Falcon

1. Peregrine falcons are not known to nest on the Forest. However, nesting and feeding habitat exists. Sufficient existing nesting and feeding habitat will be protected to meet the objectives of the Pacific Coast Recovery Plan for the American Peregrine Falcon (USDI Fish and Wildlife Service 1982). The following are the potential located nest sites that will be maintained: Oak Creek/Teepee Creek, Tieton River, Kloochman Rock, Goose Egg Mountain, Rimrock, and

STANDARDS AND GUIDELINES

Stroback Ridge. Additional sites may need to be maintained.

2. Any nest found will be protected. Associated habitat (such as feeding areas) will be maintained, and enhanced when opportunities occur.

3. Within three years after implementation of the Forest Plan, an inventory should be completed cataloging suitable peregrine falcon habitat. When the inventory is completed, the Forest should complete habitat management and nest site management plans for peregrine falcons.

4. Occupied peregrine falcon habitat will be monitored to determine the effectiveness of planned action and recovery efforts.

Grizzly Bear

1. Send reports of grizzly bear sightings to the coordinator for the Forest Service and Washington Department of Wildlife for investigation as soon as possible.

2. Projects within the evaluation area that may affect habitat will have consultation done with the USDI Fish and Wildlife Service.

3. If resident grizzly bears are discovered, cooperate with the USDI Fish and Wildlife Service and Washington Department of Wildlife to appropriately manage the animals.

4. Implement recovery objectives should a recovery plan be completed.

Gray Wolf, Canadian Lynx, and California Wolverine

1. Investigate, evaluate, and monitor sighting reports in coordination with the Washington Department of Wildlife and the USDI Fish and Wildlife Service.

2. If resident animals are discovered, inform and cooperate with the USDI Fish and Wildlife Service and Washington Department of Wildlife to insure the protection of the animals.

3. Implement recovery objectives when a plan is completed.

Northern Spotted Owl

1. Spotted owl habitat shall be managed in accordance with direction specified in the Final Supplement to the Environmental Impact Statement for an Amendment to the Pacific Northwest Regional Guide.

2. Areas proposed for harvest which contain habitat suitable for spotted owls will be surveyed according to standard inventory procedure. Maintain survey results in the Ranger District resource inventory and forward to the Forest Coordinator annually.

3. For Spotted Owls occupying non-network sites, protect nest tree and an area around it. Seek technical assistance of U.S. Fish and Wildlife Service and Washington Department of Wildlife in developing management strategies for these sites.

WILDLIFE AND FISHERIES

Wildlife and Fish Surveys and Plans

1. Wildlife and fish resources on the Wenatchee, in particular the habitat of indicator species, shall be managed in cooperation with fish and wildlife agencies. Project assessments and habitat improvement projects should be reviewed with appropriate agencies.

2. Coordinate, cooperate, and share costs when possible with the Washington State Department of Wildlife (for animals) and Washington Natural Heritage Program (for plants) in collection of habitat information, population statistics and inventories, and research on animal and plant species.

3. Fish and wildlife habitat shall be managed to maintain viable populations of all existing native and desired non-native vertebrate species in approximately their present distribution.

A. Maintain or enhance limited habitats to provide the habitat characteristics for dependent species. These habitats include, but are not limited to, cliffs, caves, talus, ponds, marshes,

wetlands, and areas of colony nesting species. Activities that need to be sensitive to limited habitat needs are logging, roads, trails, campgrounds, facilities, etc.

B. To maintain viable populations of raptors, protect all active nest and roost sites.

C. To provide viable populations of deciduous dependent species, maintain or enhance the deciduous and mixed conifer/deciduous tree habitat. Maintain activity levels that allow high use of deciduous habitat by wildlife.

4. Coordinate and cooperate with the Washington Department of Wildlife in relocation of animals. Add additional animals where habitat is under utilized and remove animals where habitat is over utilized.

5. All projects will be surveyed to locate habitats which are limited; e.g., for raptor nest and roost sites, deciduous tree habitat, meadows, and watering sites.

6. Strive to provide a high level of wildlife habitat diversity in each sub-basin (1,000 to 10,000 acre area).

7. Develop opportunities for public viewing of wildlife where low impact to animals can be assured, and when compatible with prescription objectives.

8. Expand the education/interpretive materials available so the public has the opportunity to be more appreciative of wildlife, fish, and plants and to enjoy the non-consumptive use opportunities provided.

9. Maintain and update habitat information and maps of sightings for species that have assessments done.

10. Coordinate to the extent possible with State and Federal fish agencies, Indian Tribes and the Northwest Power Planning Council's Fish and Wildlife Program to develop fish and fish habitat management objectives, by subdrainage.

11. Monitor to the extent practical, management indicator species to determine population trends

in relation to habitat conditions. Coordinate and cooperate in the monitoring with the Washington Departments of Fish and Wildlife and Treaty Indian Tribes.

12. Maintain and improve current and long-term fish habitat capability and distribution to accomplish natural production goals as established by State and Federal Fish Management agencies, Indian Tribes and the Northwest Power Planning Council's Sub-basin Planning Process.

13. Implement habitat and watershed surveys to quantify current habitat quantity, quality and production. Utilize approved methods to assess habitat quality and quantity and watershed conditions. The Forest will define baseline inventory parameters based upon Regional direction and monitoring of standards and prescription. Districts may add survey parameters as needed to meet specific objectives. Coordinate, cooperate and share costs where possible with State and Federal Fish Management agencies, Indian Tribes, and private groups in collection of habitat information and population statistics.

14. Update Geographic Information System, Total Resource Inventory or appropriate data base annually.

15. Provide support to other resource projects to evaluate the potential direct, indirect and cumulative effects of proposed activities on fish resources and fish habitat. Utilize professional judgement and technical evaluation on a subdrainage and site specific basis to predict and evaluate effects and prescribe appropriate mitigation.

16. Develop and annually update fish habitat management five year program by Ranger District to provide more specific direction in response to the framework outlined in Forest Plan. Utilize the five-year program as a planning and budgeting tool designed to identify personnel needs, support services, inventory strategy and improvement projects. The five-year program will provide a documented link between Forest Plan objectives and the program development and budgeting process which allows for detailed tracking of fish habitat goals, objectives and accomplishment for current and out-year(s). Coordinate the develop-

ment and revision of the program with the watershed section, other resource elements, State and Federal Fish Agencies, Indian tribes and private groups.

17. Develop fish habitat management objectives for drainages to help prioritize work activities including surveys and improvement projects. Update/revise as needed. Coordinate with other resources, State and Federal Fish Management Agencies, Indian tribes, public groups and Northwest Power Planning Council Sub-basin Planning process.

18. Develop opportunities for public viewing and education so that the public has the opportunity to be more appreciative of fish resources and non-consumptive uses.

### Primary Cavity Excavator

Primary cavity excavators, as an indicator species, represent habitat for live defective trees, all decay stages of standing dead trees, and all decay stages of dead and down trees.

1. Provide all decay classes of dead and down trees. Provide an average of not less than two dead and down tree segments per acre in decay classes 1 and 2, well distributed over the area. Tree segments should be greater than 12 inches in diameter and a minimum of 20 feet long.

2. Live and hard dead trees with cavities will be preferred over those without cavities.

3. Establish assessment areas (sub-basins of 1,000 to 10,000 acres) and distribute primary cavity excavator habitat over a majority of the acres within the subbasin. At a minimum, habitat will be provided to maintain cavity excavators at 20 percent of their potential population size. Snag densities necessary to meet this level must be provided within land areas that are generally no larger than 40 acres in size.

4. Each prescription will achieve its assigned population goal for each sub-basin.

5. Maintain the same level of soft dead trees and large down trees as would be naturally created by the population goal for dead trees.

### Big Game Management

1. Develop a species management guide for implementation of direction for each deer and elk winter range and mountain goat range. Guides should be completed as soon as possible to achieve meeting the direction in prescriptions. An estimated 15 mountain goat guides, 9 deer/elk guides, 7 deer guides, and 1 deer/bighorn sheep guide will be needed. Species management guides will establish more specific management information for each species.

2. Coordinate, cooperate, and share costs when possible with State and Federal fish and wildlife agencies, Indian Tribes, and private groups in the collection of habitat information, population statistics and inventories, research, and habitat improvement projects.

3. Cooperate and coordinate with the Washington Department of Wildlife to inventory, map and define elk and deer spring and fall range.

4. Coordinate with the Washington Department of Wildlife to map key habitat, winter and summer range for mountain goats and bighorn sheep.

5. Bighorn sheep and mountain goat requirements will take precedence over deer and elk requirements when conflicts in management occurs.

6. Prevent introduction of disease(s) from livestock into resident herds of bighorn sheep by identifying potential problem areas, and developing a plan to mitigate the identified problems.

7. Cooperate and coordinate with the Washington Department of Wildlife in closing some roads during hunting season to provide a variety of motorized and non-motorized hunting opportunities.

8. Generally, strive to provide well distributed cover over at least 40 percent of a subbasin in deer and elk summer range. It would be desirable to have 50 to 100 percent of this cover as thermal cover.

9. Strive to maintain forage areas for deer and elk of less than 40 acres in size. These should be surrounded by thermal and hiding cover. Thermal cover should be at least 20 percent of periphery of each unit.

10. Provide thermal cover for mountain goats to travel between summer and winter range.

11. Limit the roads in mountain goat summer range. Close as many of the roads in summer range as is reasonable while providing recreation access to trails, trail heads, and other areas of recreation activity and interest. Roads will not be built in mountain goat winter range when other reasonable alternatives exist.

12. Provide for an even flow of mountain goat habitat.

13. Discourage activities in key mountain goat winter and kidding range from Dec. 1 until July 1.

14. Manage migration routes of big game to provide enough hiding cover to facilitate travel.

#### **Nonstructural Habitat Improvement**

1. Implement cost effective habitat improvement projects that are needed to meet the Forest-wide and prescription directions.

2. Provide an economic analysis of each project.

3. Design the habitat improvements to help meet objectives of other resources, when practical.

4. Look for opportunities to share costs of habitat improvements with the Washington Department of Wildlife, other agencies, and private groups.

5. Improve forage quality and quantity in summer range in allocations other than prescriptions for big game (EW-1 and EW-3), when it is a limiting factor, and consistent with other resource objectives.

6. Strive to provide an abundance of herbaceous vegetation with a high nutrient content in the spring and fall range of big game.

7. For mountain goats create or maintain small openings of 0.5 to 5 acres of high quality forage in both summer and winter range.

8. Update the 10 year schedule for wildlife and plant improvement projects annually.

#### **Structural Habitat Improvement**

1. Implement cost effective habitat improvement projects where needed to meet the prescription direction.

2. Provide an economic analysis of each project.

3. Design habitat improvements to help meet the objectives of other resources, when practical.

4. Look for opportunities to share costs of habitat improvements with the Washington Department of Wildlife, other agencies, and private groups.

5. Develop watering facilities, for use by a variety of wildlife, where increases in wildlife are expected.

6. Increase primary cavity excavator habitat in allocations that are below the potential population objective as soon as possible.

7. Update the plan for wildlife and plant improvement projects annually.

#### **Fish Habitat Improvements**

1. Utilize sub-basin habitat objectives and five-year plans to prioritize and schedule habitat improvement projects.

2. Develop project plans based upon inventories, sub-basin objectives and Five-year Plans.

3. Schedule projects on a priority basis, upon sub-basin objectives Five-year plans and Forest-wide Activity Schedule (Appendix A). Rehabilitation of degraded habitat will have priority over enhancement projects.

STANDARDS AND GUIDELINES

4. Implement structural and non-structural fish habitat and watershed improvement projects as funded. Coordinate, cooperate and share costs when possible with other resources, State and Federal Fish Agencies, Indian tribes, private groups and the Northwest Power Planning Council Fish and Wildlife Program.

5. Provide maintenance of projects to assure fish habitat improvement projects are functional to meet objectives and protect investment. Annually monitor projects to prioritize maintenance needs. Develop an accounting system to record planned, completed projects and maintenance needs.

6. Annually complete Forest accomplishment report for distribution to Ranger Districts, Regional Office and outside groups.

7. Monitor habitat improvement projects as provided in Chapter V of the Forest Plan to determine effectiveness of projects at meeting stated objectives.

8. Increase fish habitat capability and watershed condition through implementation of rehabilitation and enhancement projects utilizing a variety of funding sources, including but not limited to, FRP, P&M, KV, and BPA funds. Coordinate with State and Federal Fish agencies, Treaty Indian Tribes, private groups, and the Northwest Power Planning Council's Fish and Wildlife Program.

RIPARIAN AREAS

Planning

Specify riparian management objectives for all projects to be implemented within the land and vegetation associated with Class I, II, III and IV streams, lakes, wetlands, seeps and springs.

1. Within Riparian Management Areas, management decisions will be made in favor of riparian dependent resources (e.g., water quality, fish and wildlife habitat) where conflicts exist.

2. Riparian area management will meet or exceed State and Federal Water Quality standards and

Washington State Forest Practices Rules and Regulations.

3. Riparian management objectives for projects will be established based upon an analysis of the existing and desired future conditions within both the project area and the subdrainage (generally 1,000-10,000 acres).

The Riparian Management Area (RMA) within which these objectives apply shall correspond to at least the recognizable area dominated by riparian vegetation (true riparian zone) and sufficient adjacent area (influence area) to assure adequate protection to achieve riparian management objectives and standards in the subdrainage. Utilize the following direction in identifying the width of the RMA:

1. RMA will include the true riparian zone, that zone of transition between the aquatic ecosystem and the terrestrial ecosystem that can be identified by soil characteristics and distinctive vegetative communities that require free or unbound water (FSM 2526.05).

2. The width of the "influence area" required adjacent to the true riparian zone will be determined on a site-specific basis considering factors such as surface erosion/delivery potential, mass erosion potential, large woody debris recruitment, shading needs, fine particulate organic matter input, etc.

A. The following table establishes RMA width based on the potential for sediment delivery from surface erosion into stream channels.

Table IV-16

Potential Erosion Hazard <sup>1/</sup>	Percent Slope Adjacent to Stream	Slope Distance from High Water Mark <sup>2/</sup>
High	0 %	100 feet <sup>3/</sup>
Mod/Low	0 %	100 feet
High	10 %	120 feet
Mod/Low	10 %	110 feet
High	30 %	160 feet
Mod/Low	30 %	130 feet
High	50 %	200 feet
Mod/Low	50 %	150 feet
High	70 %	240 feet
Mod/Low	70 %	170 feet

<sup>1/</sup> Potential soil erosion hazard/risk based on Wenatchee National Forest Soil Resource Inventory.

<sup>2/</sup> High: Distance increases at a rate of two feet for each one percent increase average slope  
Mod/Low: Distance increases at a rate of one foot for each one percent increase in average slope.

<sup>3/</sup> Example: A stream 20 feet wide at high water with average slope of 30% on one bank and 70% on the other bank on Mod/Low erosion potential would have an RMA width of 130 feet (30%) plus 170 feet (70%) plus 20 feet (high flow stream width) for a total of 320 feet.

B. Utilize existing or develop new guidelines to facilitate the determination of RMA width based on stream temperature (shade) and natural large wood recruitment.

C. The width of consideration for the Riparian-Aquatic Protection Zone (EW-2 Prescription) is defined by the table above.

Complete a floodplains and wetlands analysis for any project that has the potential to impact these sensitive areas. This analysis and all management activities within these areas will comply with the objectives of Executive Orders #11988 (Floodplains) and #11990 (Wetlands).

#### Administration

Utilize management prescriptions (such as EW-2) and apply site-specific management practices to achieve riparian management objectives.

The following standards and guidelines describe the desired end results for the various riparian classifications on the forest.

#### CLASS I, II AND III STREAMS, LAKES AND WETLANDS

The desired future condition for riparian areas on the Forest has been described in terms of four major components of riparian habitat: (1) Sediment, (2) Temperature, (3) Channel Morphology, and (4) Floodplain/ Riparian Vegetation. These four components of riparian habitat are most indicative of the health of the system. Standards that are measurable are identified for each component in order to define the parameters for evaluating riparian habitat conditions.

The focus of these standards is to provide riparian habitat conditions on a subdrainage basis to meet soil productivity standards, water quality standards, and fish and wildlife habitat objectives.

## STANDARDS AND GUIDELINES

These standards are intended to be applied as a family of parameters to evaluate conditions and establish management objectives for riparian areas in each subdrainage. The standards provide a means to measure actual "on-the-ground" attainment of the desired future condition for riparian areas on the Forest.

The standards are end-result oriented. That is, they define what riparian habitat conditions need to be in order to meet goals and objectives. How the standards are to be met or maintained will be determined on a project basis depending on both the site conditions and the current and desired future condition of the subdrainage.

It is known that present conditions in some subdrainages on the Forest do not meet one or more of the measureable standards. When this is the case, an analysis needs to be made as to why the subdrainage does not meet a particular standard. A number of different situations might result from this analysis. If a subdrainage does not meet a standard due to man's activity, then a strategy and timeframe needs to be developed to achieve the standard. If man's activities have altered a subdrainage so that it is unlikely that a standard can ever be achieved, then a new standard needs to be developed for that area. If a standard cannot be achieved due to natural conditions, a new standard would need to be developed for that subdrainage.

### Class I, II and Fish Bearing Class III Streams 1/

#### 1. Sediment

a) Fines - Maintain <20% fines ( $\leq 1.0\text{mm}$ ) as the area weighted average in spawning habitat (pool tail-outs and glides).

b) Macroinvertebrates - Maintain stream substrate so that  $\geq 3$  sediment sensitive macroinvertebrate species, typical of streams in the area, maintain densities of  $\geq 200$  individuals/ $\text{m}^2$ .

c) Turbidity - Meet State water quality standards for turbidity.

#### 2. Temperature

a) The maximum temperature will be  $\leq 61^\circ\text{F}$  on any day and/or the average 7-day maximum temperature will be  $\leq 58^\circ\text{F}$

b) Where streams naturally exceed the above standards, management activities will not cause further measureable temperature increase.

#### 3. Channel Morphology

a) Pools - (1) Alluvial, gravel or low gradient ( $< 2\%$ ) streams will maintain one or more primary pools 2/ every 3 channel widths 3/.

(2) Boulder - Rubble or moderately steep gradient ( $> 3\%$ ) streams will maintain one or more primary pools every 6 channel widths.

b) In-Channel Large Wood - Provide an average of  $\geq 20$  pieces (i.e., Key Pieces) 4/ of large wood/1,000 lineal feet ( $\geq 100/\text{mile}$ ) on Class I, II and fish bearing Class III streams.

The minimum size standards to meet in-channel large wood requirements are as follows:

Minimum length 50 feet

Minimum diameter  $\geq 12$  inches (80%)

$\geq 20$  inches (20%) 5/

1/ Includes both perennial and intermittent streams as defined in FSM 2526 05 (See Glossary).

2/ Primary pools occupy  $\geq 50\%$  of the low flow channel width and have a maximum depth of  $\geq 36$  inches

3/ Channel widths are bank-full widths

4/ Key wood pieces "in the channel" include those downed pieces meeting size requirements and having at least 20% of their length within the vertical plane established as perpendicular to the bankfull channel margin.

5/ Diameter refers to the mean diameter obtained as an average of the diameters of each end of the log

These dimensions are based on average minimum conditions, Forestwide. Different standards may be developed for some subdrainages when warranted by site-specific conditions (e.g., site potential).

#### 4. Floodplain/Riparian Vegetation

a) Vegetative Ground Cover - Maintain  $\geq 90\%$  vegetative ground cover provided by trees, shrubs, grasses, sedges and duff within the floodplain and true riparian zone.

Refer to the Forestwide Standards and Guidelines for Range Planning and Inventory for additional direction on vegetation management in riparian areas.

b) Potential Large Wood - Maintain  $\geq 20$  live conifer trees per acre  $\geq 20$ " d.b.h. in order to meet in-channel wood standard.

As with the in-channel wood standard, this standard describes minimum average conditions, Forestwide. Different standards may be developed for some subdrainages when warranted by site-specific conditions (e.g., site potential). The intent of this potential large wood standard is to meet the in-channel large wood standard over time.

The actual number of trees maintained on most sites will be the net result of project prescriptions designed to meet all the riparian standards, including stream temperature, sediment and dead/defective tree habitat. Refer to the "Administration" section for further information on application of these guidelines.

c) Vegetative Composition - At a minimum, meet Washington State Forest Practice Rules and Regulations for leave tree requirements in riparian areas. Maintain riparian habitat diversity associated with deciduous trees as would be expected on the site.

d) Dead/Defective Tree Habitat - Manage RMA dead/defective tree habitat at 80% of the theoretical biological potential within the subdrainage.

e) To provide viable populations of wildlife, manage the edges of lakes to provide wildlife undisturbed access to at least 20% of the RMA.

#### 5. Fish Passage

a) All new road construction shall maintain or enhance fish passage.

b) Identify man-made fish passage barriers. Develop and implement plans for correction of passage problems on a priority basis.

#### Lakes and Wetlands

1. Floodplain/Riparian Vegetation - Standards for lakes and wetlands for this riparian habitat component are the same as those listed above for Class I, II and Fish Bearing Class III Streams.

#### Non-Fish Bearing, Class III Streams 1/

1. RMAs associated with non-fish bearing, perennial streams are managed to meet standards and subdrainage objectives for fish habitat, water quality and riparian associated wildlife habitat. Because of the wide diversity of these types of channels across the Forest, a variety of prescriptions will need to be applied based upon the site and subdrainage objectives for riparian dependent resources.

a) Sediment - Limit sediment loading and maintain channel conditions necessary to meet standards in fish-bearing streams. Refer to the variable width table above for initial guidance on determining RMA width considering erosion potential.

b) Temperature - Management along these streams will not increase temperatures in fish bearing streams above standards.

1/ Includes non-fish bearing, perennial streams not meeting higher class criteria as defined in FSM 2526.05 (See Glossary).

c)Channel Morphology

(1)Pools - Same as Class I, II and fish bearing Class III streams except no Forestwide depth requirement. Recognize the role of pools in providing habitat diversity and in regulating the flow of materials through these stream systems. (e.g., diversity for aquatic organisms and terrestrial wildlife; streamflow energy dissipation, etc.)

(2)In-Channel Large Wood - Same as Class I, II and fish bearing Class III streams except minimum piece length is two bankfull channel widths and numbers apply as an average condition for non-fish bearing, perennial streams in a subdrainage.

d)Floodplain/Riparian Vegetation

(1)Vegetative Ground Cover - Maintain  $\geq 90\%$  ground cover provided by trees, shrubs, grasses, sedges and duff within the floodplain/true riparian zone.

Refer to the Forestwide Standards and Guidelines for Range Planning and Inventory for additional direction on vegetation management in riparian areas.

(2) Potential Large Wood - Maintain trees necessary for sideslope stability, channel stability, long-term large wood input and wildlife habitat diversity.

(3) Dead/Defective Tree Habitat - Manage so that as an average subdrainage condition, RMA's associated with these streams provide dead/defective tree habitat at 80% of the theoretical biological potential.

**CLASS IV STREAMS, SEEPS AND SPRINGS**  
1/

1. Manage Class IV streams so as to not adversely impact water quality, fish habitat and viable wildlife populations and water quality in the subdrainage. Give special consideration to land and vegetation adjacent to Class IV stream

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1/ Includes non-fish bearing, intermittent streams not meeting higher class criteria as defined in FSM 2526.05 (See Glossary).

channels to meet riparian management objectives for the subdrainage. Emphasis is on maintenance of bank and channel stability. Maintain wood necessary for channel maintenance and control. Recognize the importance of Class IV streams, seeps and springs in providing wildlife habitat diversity and maintain diversity necessary to accomplish subdrainage objectives.

a) Protection of channel stability and wildlife habitat diversity associated with Class IV streams, seeps and springs is usually accomplished by cutting area design, logging method selection, maintenance of duff or low ground vegetation and brush. As needed, leave conifer or hardwood trees necessary for bank stability, long-term wood input and wildlife habitat diversity. Forest standards for dead/defective tree habitat are expected to provide wood needed for bank stability, wildlife habitat diversity and long term wood input to the channels.

b) In Class IV stream channels leave all naturally downed large woody material within or across the vertical plane established as perpendicular to the bankfull channel margin, unless on-site evaluation indicates that this material poses an unacceptable risk of damage.

c) Maintain sufficient habitat along Class IV stream channels, seeps and springs to provide viable populations of amphibians. Habitat needs to be well distributed throughout subdrainages on the Forest.

**RANGE**

**Range Planning and Inventory**

1. Allotment management plans will be written or revised to meet the goals and objectives for the management area in which the allotment is located.

2. Areas of suitable range outside of existing allotments will be incorporated into existing or new allotments for use by livestock to help:

- A. Solve overuse on problem allotments;
- B. Meet other resource objectives;
- C. Meet demand for forage.

3. As part of the analysis of new allotments or re-analysis of existing allotments.

A Identify lands in unsatisfactory condition, see glossary. Develop allotment management plans with specific objectives for these lands on a priority basis under a schedule established by the Forest Supervisor. These objectives will define a desired future condition based on existing and potential values for all resources. The allotment plan will include: 1) a time schedule for improvement, 2) activities needed to meet forage objectives; and 3) an economic efficiency analysis

B. Identify allotments with riparian areas in unsatisfactory condition, i.e. 1) on suitable range, forage condition is not at least fair, with a stable trend, or 2) classification is PC-basic resource damage or PD-other resource damage, see glossary.

C. Range allotment management plans will include a strategy for managing riparian areas. A measurable desired future riparian condition will be established based on existing and potential vegetative conditions.

When the current riparian condition is less than that desired, objectives will include a schedule for improvement. The allotment management plans will identify management actions needed to meet riparian objectives within the specific time frame. Measurable objectives will be set for key parameters, such as stream surface shaded, streambank stability, and shrub cover. This process is described in "Managing Riparian Ecosystems (Zones) for Fish and Wildlife in Eastern Oregon and Eastern Washington" (1979). The plan will address the monitoring needed to determine if the desired rate of improvement is occurring. Allotment management plans currently not consistent with this direction will be developed or revised on a priority basis under a schedule established by the Forest Supervisor

#### Range Non-Structural Improvements

1. Refer to Non-Structural Range Improvement Handbook.

#### Range Structural Improvement Maintenance

1. Maintain all structural improvements at, or as near as practical to, the standard to which they were constructed.

#### Range Administration and Management

1. When allotment boundaries do not follow management area boundaries, grazing management systems will be designed to meet the highest prescribed levels of management contained in the appropriate management prescriptions

2. Utilize livestock as a tool to manipulate vegetation in achieving other resource objectives

3. Forage utilization by livestock will generally follow established allowable use guides (Tables IV-17 and IV-18), however, percent use will be adjusted up or down to meet total resource needs

#### Noxious Farm Weeds

1. Cooperate with the Washington State Noxious Weed Control Board and other state, county and local agencies and organization in the identification, location, prevention and spread of noxious farm weeds.

2. Develop an Action Plan for inventory and monitor populations of noxious weed populations on the Wenatchee National Forest

3. Conduct a noxious weed assessment for all significant ground disturbing project activities to determine the risk of introducing noxious weeds and develop a plan to prevent introduction on moderate and high risk sites.

4. Contain, control or eradicate existing populations as budget allows. Give priority as follows:

**TABLE IV-17**  
**RIPARIAN AREAS - FORAGE UTILIZATION**  
**ALLOWABLE USE OF AVAILABLE FORAGE 1/**

RANGE RESOURCE MANAGEMENT LEVELS (FSH 2209.21 R-6)	MAXIMUM ANNUAL UTILIZATION (percent)			
	Grass & Grasslike <sup>2/</sup>		Shrubs <sup>3/</sup>	
	Sat.Cond.4/	Unsat.Cond.5/	Sat.Cond.4/	Unsat.Cond.5/ <sup>6</sup>
<u>B</u> - Livestock use managed within current grazing capacity by riding, herding and salting. Cost-effective improvements used only to maintain stewardship of range.	40	0-30	30	0-25
<u>C</u> - Livestock managed to achieve full utilization of allocated forage. Management systems designed to obtain distribution and maintain plant vigor include fencing and water development.	45	0-35	40	0-30
<u>D</u> - Livestock managed to optimize forage production and utilization. Cost effective culture practices improving forage supply, forage use & livestock distribution may be combined with fencing and water development to implement complex grazing systems.	50	0-40	50	0-35

1/ This will be incorporated in Allotment Management Plans. Allotment Management Plans may include utilization standards which are either lower or rarely higher when associated with intensive grazing systems and specific vegetation management objectives which will meet objectives for the riparian dependent resources. Includes cumulative annual use by big game and livestock.

2/ Utilization based on percent removed by weight

3/ Utilization based on incidence of use, weight, and/or twig length.  
 Example: If 50 leaders out of 100 are browsed, utilization is 50 percent

4/ Satisfactory Condition - see glossary (satisfactory condition is determined by allotment classification and/or forage condition)

5/ Unsatisfactory Condition - see glossary (anything not "satisfactory").

**TABLE IV-18**  
**SUITABLE RANGE (EXCEPT RIPARIAN)**  
**ALLOWABLE USE OF AVAILABLE FORAGE <sup>1/</sup>**

RANGE RESOURCE MANAGEMENT LEVELS (FSH 2209.21 R-6)	MAXIMUM ANNUAL UTILIZATION (percent) <sup>2/</sup>					
	Forest		Grassland		Grass and Grasslike	
	Sat. Cond.3/	Unsat. Cond.4/	Sat. Cond 3/	Unsat Cond.4/	Sat. Cond.3/	Unsat. Cond 4/
<b>B</b> - Livestock use managed within current grazing capacity by riding, herding and salting. Cost-effective improvements used only to maintain stewardship of range.	40	0-30	50	0-30	40	0-25
<b>C</b> - Livestock managed to achieve full utilization of allocated forage. Management systems designed to obtain distribution and maintain plant vigor include fencing and water development.	45	0-35	55	0-35	45	0-30
<b>D</b> - Livestock managed to optimize forage production and utilization. Cost effective culture practices improving forage supply, forage use & livestock distribution may be combined with fencing and water development to implement complex grazing systems.	50	0-40	60	0-40	50	0-35

<sup>1/</sup> This will be incorporated in Allotment Management Plans. Allotment Management Plans may include utilization standards which are either lower or rarely higher when associated with intensive grazing systems and specific vegetation management objectives which will meet resource objectives. Includes cumulative annual use by big game and livestock.

<sup>2/</sup> Utilization based on percent removed by weight for grass, grasslike, and forbs.

<sup>3/</sup> Satisfactory Condition - see glossary (satisfactory condition is determined by allotment classification and/or forage condition).

<sup>4/</sup> Unsatisfactory Condition - see glossary (anything not "satisfactory").

**Priority by Noxious Weed Class**

1. Class "A" - those noxious weeds not native to the State that are of limited distribution or are unrecorded in the State and pose a serious threat to the State.
2. Class "B Designate" - those noxious weeds (designated by the state) not native to the State that are of limited distribution or are unrecorded in a region of the State and are common in other regions of the State.
3. Class "C" - any other noxious weeds as identified by the Forest Supervisor.
4. Class "B Non-designated" noxious weeds.

**Priority by Location**

1. Projects that are next to agricultural lands or areas threatening Federally listed threatened, endangered and sensitive plant or animal species.
2. Projects that are along the Forest boundary or within or threatening Congressionally designated Wilderness area(s).
3. Areas in or adjacent to commodity producing areas.
4. Areas adjacent to disturbed areas.
5. Projects within or adjacent to visually sensitive areas.
6. All other locations.

**TIMBER**

**Regeneration Harvest**

1. Immature understories of existing stands which are candidates for an overstory removal may be retained for further management if the residual stand contains a minimum of 50 well distributed trees per acre. These trees should be a desirable species, well formed, free to grow after overstory removal, and capable of a radial growth rate of 15 annual rings per inch or better within five years after release. Multi-level stands which do not meet the above understory minimums should be scheduled for regeneration harvest at the appropriate time rather than overstory removal.

**Intermediate Harvest**

1. Intermediate harvests should be designed to improve quality, vigor, and value of the residual stand and not necessarily to maximize return from the intermediate harvest.

**Silvicultural Examination and Prescription**

1. The selected silvicultural system must be capable of providing special conditions, such as a continuous canopy or continuous high density live root mats when required by critical soil conditions, or conditions needed to achieve management objectives such as streamside protection, wildlife needs, and visual resources.
2. The selected silvicultural system must permit control of existing or potential vegetation to a degree that establishment of numbers of trees, other desirable vegetation, and rates of growth as identified in site specific silvicultural prescriptions for harvest areas, can be achieved.
3. The silvicultural system selected must promote stand structure and species composition which avoids serious risk of damage from mammals, insects, disease, or wildfire and will allow treatment of existing insect, disease, or fuel conditions.
4. Silvicultural prescriptions will be prepared on a site specific basis for all activities proposing the management of trees or timber stands to meet resource objectives. All prescriptions will be prepared or approved by a certified silviculturist.
5. The silvicultural prescription shall consider integrated pest management. Pests include insects, diseases, animals, and vegetation. Pesticide application shall conform to Regional direction.

**Reforestation**

1. The selection of any particular treatment method will be made at the project level based on a site-specific analysis of the relative effectiveness, environmental effects (including human health), and costs of the feasible alternatives. Herbicides will be selected consistent with the

basis established in the Final Environmental Impact Statement For Managing Competing and Unwanted Vegetation. Monitoring and enforcement plans to implement specific measures will be developed for site-specific projects and evaluated in the environmental analyses for these projects.

2. Natural regeneration opportunities will be utilized as appropriate to supplement planting of tree improvement stock.

3. In regeneration units, site preparation should be completed concurrently with logging, or one year after harvest. Units should be suitable for certification within five years after the regeneration harvest. Exceptions may occur, but only for resource objectives that have been documented through environmental analysis.

4. Regional and local stocking guides should be utilized to assess adequate stocking on all regeneration units prior to certifying them as being satisfactorily reforested. Minimum stocking is 150 well distributed trees per acre of a species suitable to the site.

#### Timber Stand Improvement

1. The actual number of trees for satisfactory reforestation may range from 150 to 500 trees per acre. Variations depend on species and tree sizes found on the site. Stands with more than 500 trees per acre normally need thinning to optimize growth.

2. Release projects shall be governed by the Final Environmental Impact Statement for Managing Competing and Unwanted Vegetation. Prevention of problems shall be the overriding principal.

3. Fertilization can be done where positive net public benefits are expected, based on past research and local experience.

#### Timber Sale Preparation and Timber Harvest Administration

1. Forest openings created by the application of even-aged silviculture shall be limited to a maximum size of 40 acres. Exceptions are permitted in the following cases: When natural catastrophic

situations such as fires, windstorms, or insect and disease outbreaks occur; on an individual case basis after 60 day public notice and review by the Regional Forester; or, when any one of the criteria described below is met and will produce a more desirable combination of benefits, the limits may be exceeded by not more than 50 percent without review by the Regional Forester and 60 day public notice.

#### Criteria for 50 Percent Exception

A. When larger created openings will reduce the disturbance to soil, water, fish, riparian resources, or residual vegetation by: allowing economically feasible logging systems that reduce landing and road construction; or locating roads away from unstable soils; or by reducing soil and vegetation disturbance from dragging logs.

B. Where groups of dwarf mistletoe or root rot disease infected trees need to be incorporated into the created opening to avoid infection of susceptible conifer reproduction, and their inclusion cannot be achieved by centering the created opening over the area of infection.

C. Where visual quality objectives require shaping and blending of openings to fit landform. This includes the visual rehabilitation of existing openings.

D. Where larger units are needed to achieve silviculture objectives in existing areas of regeneration cutting by the shelterwood method, and where destruction of the newly created stand of reproduction would occur as a result of delayed removal of shelter trees. This exception applies only to existing shelterwood units and shelterwood units under contract prior to approval of the Forest Plan.

2. Created openings will be separated by areas generally not classed as created openings. The areas between created openings shall contain one or more logical harvest units. These areas shall be large enough and contain a stand structure to meet resource requirements of the Forest Plan. Resource requirements may include wildlife habitat, watershed, landscape management, and others.

The total area of created openings contiguous to 30 acre or larger natural openings should normally be limited to an area not exceeding one-third the size of the natural opening, and not occupying more than one-third of the natural opening perimeter. Openings should not be created adjacent to any natural openings unless adequate vegetation along the edge can be developed or retained in sufficient density to protect wildlife values and scenic management objectives. The determination of adequate vegetation will be made by an appropriate interdisciplinary team.

3. A harvested area of commercial forest will no longer be considered a created opening for silvicultural purposes when stocking surveys carried out in accordance with Regional instructions indicate prescribed crop tree stocking at or above four and one-half feet in height and free to grow. Where other resource management considerations are limiting, such as wildlife habitat and visual requirements, a created opening will no longer be considered an opening when the vegetation in it meets the management prescription objective.

Utilization

**Table IV-19**

**Utilization Standards for Saw Logs**

Species(groups)	Min DBH 1/	Min Top DIB 2/
<b><u>First decade</u></b>		
Existing mature except lodgepole pine	9 inches	6 inches
Existing commercial thinning size and lodgepole pine	7 inches	4 inches
<b><u>Future decades</u></b>		
All species	7 inches	4 inches

DBH 1/ - Diameter at Breast Height  
DIB 2/ - Diameter Inside Bark

1. Utilization will be emphasized as the primary means of disposal of waste wood residue.

Nursery Management

1. No special practice.

WATER

Planning

1. Program Implementation - Develop and annually update a Water Resource Five-Year Program that identifies support services, inventory needs, improvement targets, and monitoring direction by Unit and subdrainage. Coordinate the development and implementation of the program with other resource elements, Forests, and State and Federal agencies, Indian Tribes and public groups.

Improvement

1. Refer to the "Improvement" section under the soil resource for direction regarding the Watershed Improvement Program.

Administration and Management

1. Protection of Water Quality - Comply with State requirements for protection of waters of the State of Washington (Washington Administrative Code, Chapters 173-201 and 202) through planning, application, and monitoring of Best Management Practices (BMPs) in conformance with the Clean Water Act, regulations, and federal guidance issued thereto.

In cooperation with the State of Washington, the Forest will use the following process to insure protection of water quality:

A. Select and design BMPs based on site-specific conditions, technical, economic, and institutional feasibility, and the water quality standards for those waters potentially impacted.

B. Implement and enforce BMPs.

C. Monitor to determine if practices are correctly applied as designed.

D. Monitor to determine the effectiveness of practices in meeting design expectations and in attaining water quality standards.

E. Evaluate monitoring results and mitigate where necessary to minimize impacts from activities where BMPs do not perform as expected.

F. Adjust BMP design standards and application when it is found that beneficial uses are not being protected and water quality standards are not being achieved to the desired level. Evaluate the appropriateness of water quality criteria for reasonably assuring protection of beneficial uses. Consider recommending adjustment of water quality standards.

Use the existing agreed to process to implement the State Water Quality Management Plan on lands administered by the USFS, as described in Memorandum of Understanding (MOU) between the Washington Department of Ecology and U.S. Department of Agriculture Forest Service (7/79), and "Attachment A" referred to in this MOU (Implementation Plan for Water Quality Planning on National Forest lands in the Pacific Northwest 12/78).

Individual, general Best Management Practices are described in the General Water Quality Best Management Practices, Pacific Northwest Region, 11/88. This document provides guidance but not direction. Also included in this document is a description of the process, and limitations and use of these BMPs. Each general BMP listed includes the Title, Objectives, Explanation, Implementation and Responsibility, and Monitoring. Evaluations of the ability to implement and estimated effectiveness are made at the project level.

Normally, not all of the general BMPs listed will apply to any given project. There may be specific BMPs which are not represented by a general BMP in this document.

The sensitivity of the project determines whether the site-specific BMP prescriptions are included in the EA/EIS or in the sale/project plan, or in the analysis files.

For a more complete explanation of the above, refer to Appendix J in the FEIS, "Best Management Practices".

2. Management of Public Supply Watersheds - Municipal supply watersheds (See Glossary) will be managed to provide water at a level of quality and quantity which, with appropriate treatment by the purveyor, will result in a satisfactory and safe water supply, recognizing that watershed protection can supplement but not be a substitute for adequate treatment.

Conduct management activities in municipal supply watersheds so as to meet State Water Quality Standards for surface water. Achieve this goal through application of Best Management Practices, which will allow compatible multiple-use activities to be conducted on National Forest System Lands in these watersheds.

During project planning, identify any individual drinking water systems in the area that have a significant potential to be affected by proposed management activities. Identify requirements for protection of individual drinking water systems on a project level basis.

3. Water Resource Investigations - Evaluate the potential direct, indirect and cumulative effects of proposed activities on water resources. Refer to the Forestwide Standards and Guidelines for the soil resource for direction regarding cumulative effects analysis.

Design and conduct water resource inventories to support project analyses at a level commensurate with the planning issues. Develop a water resource inventory program, in cooperation with other resources to: (a) provide more specific information for area and project level analysis and planning, (b) improve the Forest data base for use in Plan revisions and (c) revise current inventories to a higher standard.

4. Monitoring - Monitoring and evaluation is contained in Chapter V and in Appendix F.

### Rights and Use Management

1. National Forest Water Uses - Secure necessary water rights to accomplish the multiple-use objectives of the USDA-Forest Service as described by Federal law. For consumptive water uses: (a) Secure Federal reserved water rights pursuant to the

Reservation Doctrine and other enabling legislation or Executive Orders. (b) Acquisition of non-reserved water rights will be made pursuant to applicable State law.

For non-consumptive uses: (a) Assert Federal Reserved water rights for timber and watershed management, including instream flows sufficient to maintain stability of the stream channel for the purposes of securing favorable conditions of water flow and protecting against adverse impacts to productive timber lands adjacent to the channel, pursuant to authority contained in the Organic Administration Act of 1897. (b) Assert water rights for other resource programs by securing instream flows pursuant to authorities contained in other applicable Federal law.

2. Protection of Water Uses - Review water right claims and applications that involve development on or near National Forest System lands in order to determine compatibility with multiple-use objectives. Environmental analysis will be conducted by either the Forest or applicant to evaluate proposed water uses, diversions, transmission applications and renewal of permits on Forest.

Protection of water uses will be achieved through the following means: (a) filing protests with the State in cases where applications are made that adversely effect National Forest resources, (b) asserting claims under applicable Federal or State laws, (c) inserting protection measures into special use permits, (d) developing formal agreements over water use, or (e) purchasing needed water rights where sufficient water cannot be obtained under the Reservation or Appropriative Doctrines.

Permits will not be issued for occupancy of National Forest System lands if that occupancy would conflict with Reserved rights or interfere with meeting other multiple-use objectives of the USDA-Forest Service as described by Federal law.

## SOIL

### Planning and Inventory

1. Inventory- Maintain an accurate soil survey data base that is of sufficient detail and quality to meet Forest Planning needs. All new soil surveys will meet National Cooperative Soil Survey Standards.

2. Program Implementation - Develop and annually update a Soil Resource Five-Year Program that identifies support services, inventory needs, improvement targets, and monitoring direction by Unit and Subdrainage. Coordinate the development and revision of the Program with other resource elements, Forests, and State and Federal agencies.

### Improvement

1. Inventory - Utilize the Forest Watershed Improvement Needs (WIN) Inventory for the identification and prioritization of treatment acres. Annually update the WIN inventory and project prioritization compatible with Regional guidelines.

2. Scheduling - Eliminate backlog of watershed improvement needs on a priority basis as directed by the Soil and Water Five-Year Programs. Acres involving potential threats to life and property will receive the highest priority for treatment, followed by projects in municipal watersheds and drainages that are used by anadromous fish. Calculate target accomplishment on a treated acre basis.

3. Maintenance - Provide maintenance to assure that watershed improvement projects are functional until objectives of the projects are met and to protect capital investments.

4. Monitoring - Watershed improvement projects and project maintenance will be monitored in order to evaluate project and program effectiveness.

Administration and Management

1. Cumulative Effects Analysis - In sub-drainages where project scoping identifies cumulative effects to be an issue or concern, a detailed watershed analysis will be made by an appropriate group of specialists. Their job will be to determine current watershed conditions and evaluate probable impacts for additional management activities. These studies will include all lands regardless of ownership.

Furthermore, a detailed watershed analysis will always be conducted when more than forty percent (40%) of the forested area in a 1,000 acre or larger subdrainage is projected to be in openings at one time (opening being defined as: the condition when the regeneration crop is less than fifteen feet tall).

2. Compaction, Displacement, Puddling, Severely Burned - Leave a minimum of 80 percent of an activity area in a condition of acceptable productivity potential for trees and other managed vegetation following land management activities. Surface soil conditions known to result in reduced productivity or loss of productive land surface are: detrimental compaction; detrimental displacement; detrimental puddling, and severely burned. The total acreage of all detrimental soil conditions should not exceed 20 percent of the total acreage within the activity area, including landings and system roads.

3. Soil Erosion - refers to both surface erosion and soil mass wasting.

a. Surface Erosion - to meet acceptable levels of soil loss and soil management objectives, the minimum percent effective ground cover following cessation of any soil-disturbing activity should be:

EROSION HAZARD CLASS	MINIMUM PERCENT EFFEC. GROUND COVER	
	1st Year	2nd Year
Low (very slight-slight)	20-30	30-40
Medium (moderate)	30-45	40-60
High (severe)	45-60	60-75
Very High (very severe)	60-75	75-90

(NOTE: see glossary for definition of effective ground cover).

b. Soil Mass Wasting - Evaluations of each occurrence will be made to determine the amount of sediment produced. Individual sub-drainages affected will be added to the monitoring plan.

4. There will be no scheduled timber harvest on stability Class V soils. These lands are unsuitable for timber management.

5. Soil and foliar testing (both pre and post application) should be done for all fertilization projects. This information will be used to determine the site specific application rates needed, and also to determine how long the fertilizer will last in different soils.

6. Closed roads, temporary roads, and landings should be placed in conditions to minimize soil erosion.

7. Surface water will be controlled on all roads, landings, rock pits, parking areas, and other road related facilities.

8. Where the above standards for soil erosion cannot be met because of specific site conditions, appropriate mitigation measures shall be devel-

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oped in the project environmental analysis, documented in the project record, and implemented prior to fall rains.

9. Sites degraded by management activities shall be rehabilitated.

### AIR

1. Maintain air quality at a level that is adequate for the protection and use of Forest resources produced on the Wenatchee National Forest, and meets or exceeds applicable Federal and State standards and regulations.

2. Protect Air Quality Related Values within all Class 1 areas.

3. Prescribed burning will be managed to comply with the State Smoke Management Plan administered by the Department of Natural Resources, the State Implementation Plan (SIP) developed and administered by the Department of Ecology, and the Final Environmental Impact Statement for the Pacific Northwest Regional Guide dated May 1984.

4. To meet Regional Standards and Guidelines, the Wenatchee National Forest will demonstrate reasonable progress in reducing total suspended particulates (TSP) from prescribed burning during Forest Plan implementation. The starting point for the Forest is 5,000 tons.

5. Prescribed fires that exceed applicable air quality regulatory standards will receive appropriate suppression action to minimize the impact to air quality.

### MINERALS

#### Locatable, Leasable, Common Variety, and Recreational

1. The public's right to explore for, develop and produce mineral resources is recognized, and orderly mineral exploration, development and production activities shall be encouraged and facilitated in all areas which are available to such

activities or where valid existing rights to conduct such activities exist.

2. Process all notices of intent, plans of operation, lease applications and permit applications in a timely manner.

3. Approve reasonable means of access when needed for mineral prospecting, exploration and development activities.

4. Per a Coop-Agreement with the State of Washington, when appropriate coordinate mining plan evaluations with the Washington State Department of Natural Resources, Division of Geology and Earth Resources.

5. If mineral activity is proposed, ensure that the land status allows the proposed activity to be conducted (e.g., open to mineral entry under the 1872 mining law, open to and/or subject to mineral leasing and open to the disposal of mineral materials, etc). If the area is withdrawn, determine if valid prior existing rights exist before approving proposed activities (consult with the District, Forest or Area Mineral Specialists).

6. Administration of all locatable, leasable and salable mineral resource activities shall ensure that those activities are conducted in accordance with the 36 CFR 228 Regulations; are conducted in compliance with applicable Federal and State standards for air quality, water quality, solid waste disposal and treatment, threatened and endangered species, cultural resources, and fire; are appropriately integrated with the use, conservation and protection of all other resources; and so as, where feasible, to minimize adverse environmental impacts.

7. Ensure that an appropriate environmental analysis and documentation is used as a basis for making mineral leasing recommendations, approving proposed mineral-related activities; establishing reclamation objectives and requirements, for designing reasonable but necessary stipulations needed to protect other resources; and for establishing reasonable but appropriate bonding requirements.

Ensure that mineral leasing recommendations are made in compliance with the Federal Onshore Oil and Gas Leasing Reform Act of 1987, the Geo-

thermal Steam Act, the Acquired Lands Leasing Act, and other applicable laws and regulations. Once leases are issued, on-the-ground activities will be managed in-keeping with the Interagency Agreements between the Forest Service and the Bureau of Land Management.

8. To the extent practical limit recommended stipulations for leases and permits to only those that have appropriate and approved wording (i.e., Uniform Format For Oil and Gas Lease Stipulations--draft April, 1988 or other approved stipulations). These may include, but are not limited to the following:

1. No surface occupancy stipulation
2. Timing or seasonal stipulation
3. Controlled surface use stipulation

9. Ensure that approved mineral activities are reasonably necessary for and incidental to mineral exploration, development or production.

10. Periodically conduct compliance checks on approved mineral activities to ensure that they are being conducted in compliance with a lease, permit or approved operating plan.

11. If existing laws and regulations will not provide adequate protection of other resources and a withdrawal is determined to be necessary, ensure that the mineral resources are appropriately evaluated and the proposal for withdrawal is made in accordance with the requirements of the Federal Land Policy and Management Act of 1976 (FLPMA).

12. If other resource activities may interfere with the right to conduct mineral resource activities (e.g., exploration, development, mining, mining claim maintenance, etc.), determine what rights do exist. If conflicts exist, resolve the conflicts before proceeding with the proposed activity.

13. Avoid or minimize capital investments in or adjacent to areas with known reserves and alienated mineral rights. If a mining claim validity examination is determined to be necessary in order to resolve land use conflicts, consult with the Area Mining Specialist. Mining claim validity should be used as a last resort for resolving such conflicts.

14. Recreation panning, sluicing, dredging and rockhounding shall be allowed throughout the Forest where such activity does not conflict with established management objectives, withdrawal objectives or the rights of mining claimants. If warranted, management plans providing specific direction on how and where these activities can occur shall be implemented.

## RURAL COMMUNITY AND HUMAN RESOURCES

### Human Resource Programs

1. Utilize available human and community development programs and/or volunteers in the National Forests whenever they can efficiently accomplish Forest work.

### Civil Rights Program

1. Maintain an Affirmative Action Plan.

2. Conduct compliance reviews as required by Title VI of the Civil Rights Act of 1964, within standards established by the Forest Service.

3. Make special efforts to inform the general public, including minorities and the underprivileged, of benefits they are eligible to receive from Forest programs. Techniques and the media best suited to increase awareness and participation will be used.

### American Indian Coordination

1. National Forest lands will be managed to minimize social and administrative barriers to legitimate users of the Forest. Where common boundaries exist with the Yakima Indian Reservation, resource activities will be closely coordinated.

2. Honor trust responsibilities to the Yakima Indian Nation under the 1855 Treaty with the Yakimas (12 Stat. 951, June 9, 1855).

3. Where appropriate, information about planned project activities will be presented to Native American Indian groups for coordination concerning effects on traditional religious sites.

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4. Protect for Native Americans their access to sites, use, and possession of sacred objects, and the freedom to worship through ceremonial and traditional rites. Appropriate protection of these areas will be coordinated with the religious leaders of the Yakima Indian Nation and the Confederated Tribes of the Colville Reservation.

## LANDS

### Special Use Management

1. Land use requests will be reviewed for compatibility with Forest plan prescriptions and allocations.
2. Terminate or conform noncompatible uses on an opportunity basis.
3. Where a use can be accommodated on private or other land, National Forest land will not be used.
4. Private uses will generally be on a charge basis, whereas use by other public agencies will usually be without charge.
5. Management practices/prescriptions will not be applied which restrict or interfere with the current use of transportation/utility corridors.
6. New transportation/utility proposals should be accommodated within existing corridors to the maximum extent feasible.

### Right-of-Way Grants for Roads and Trails

1. Aggressively acquire all needed access, in advance of project activity such as the sale of timber.
2. With few exceptions, unlimited easements granted in perpetuity will be acquired.
3. Limited easements (i.e., those authorizing administrative use, but not public use) will be acquired only when, for resource management or other reasons, public use is not desirable or necessary.

4. Temporary easements will be used under the conditions defined in the Forest Service Manual.

### Property Line Location, Property Boundary, and Corner Maintenance

1. Property line survey, marking, and posting will be accomplished in the following order:

- A. Lines needed to facilitate resource projects will be done first.
- B. Lines involved in litigation, potential litigation or trespass or potential trespass will have priority for non-project oriented work.

2. As much property line as possible should be surveyed, marked, and posted on a cooperative basis with neighboring landowners. This work may be done by our Forest surveyor, or by a "third party" Washington State licensed surveyor acceptable to both the cooperator and the Forest.

### Encroachment

1. Prevent the occurrence of occupancy trespass through accurate, clear survey marking and posting of property lines. Where possible, this will be done in cooperation with the neighboring property owners.
2. Where appropriate, the "Small Tracts Act" will be applied in the reduction of "backlog" cases and in resolving new trespasses which occur in "good faith" situations.
3. Promptly detect and act on "new" cases.

### Landownership Planning, Land Adjustment Planning, and All Adjustment Activities

1. Landownership Classification on the Wenatchee National Forest places lands in one of five categories. The direction for each is:

Category I lands are those within congressionally designated areas; for example, a Wilderness. The direction for this category is to retain existing National Forest lands and acquire private inholdings.

Category II lands are those within administratively designated areas; for example, scenic areas, Mather Memorial Parkway, botanical areas, and other lands which have been determined to be necessary for wildlife, visual, or recreation needs. Generally, in this category existing National Forest lands will be retained and private inholdings will be acquired. Acquisition of private lands in this category will be pursued as opportunities arise.

Category III lands are primarily within land allocations where management direction emphasizes commodity production. The direction for this category is to avoid placing priorities on either retention or disposal of lands. Ownership changes in either direction may be appropriate. They will be considered on a case-by-case basis.

Category IV lands are National Forest lands which will serve the public interest best in private ownership and existing private lands which should remain in private ownership. The direction for this category is to transfer the National Forest lands into private ownership. The preferred method for accomplishing this is land exchange, thus advancing other land management goals at the same time. Examples of lands which fit this classification are:

- A. Isolated small parcels of land which are impractical to manage.
- B. Parcels where a greater general public value can be derived in private ownership.
- C. Areas necessary for community expansion.

Category V lands are those which require an intensive study before priorities for ownership can be recommended. The direction for this category is to initiate the necessary studies at the earliest opportunity.

In addition to the above, communications will be maintained with neighboring Federal land management agencies. This will be done with the view of affecting land transfers to improve both agencies' resource management.

### Rights-of-Way, Cost Share Agreements

1. Use cost share agreements to avoid economic and resource impacts associated with duplicating existing or planned road systems.

## FACILITIES

### Transportation System Planning and Inventory

#### 1. State and Federal Highways

The Regional Forester's Memorandum of Understanding with Washington State will be consulted for standards and guidelines for coordinating the location, construction, maintenance, signing, access and control, third-party occupancy, landscape management, rest areas, right-of-way grants for existing highways, and Forest highway coordination. This Memorandum is included in this Management Plan by reference.

#### 2. County Roads

- a. When the majority of the use on Forest development roads is comprised of public service or other non-Forest Service generated traffic from commercial or residential development, or the road is used for mail, school, or other local government purposes, the Forest Service will actively negotiate and encourage the transfer of its jurisdiction to the appropriate public road agencies. This is usually a county.
- b. Continue to cooperate with counties and share in the cost of construction, reconstruction, improvement, and maintenance of certain Forest development and county roads. Existing agreements that provide standards and guidelines for consultation, maintenance, rights-of-way, etc., are included in this plan by reference.

#### 3. Share Cost Roads

Whenever possible or feasible, the Forest Service will avoid duplicating existing or planned road systems by negotiating agreements with interested parties to share in the costs of a single system to serve all tributary ownerships. All existing agreements with Burlington Northern, Plum Creek,

## STANDARDS AND GUIDELINES

Boise Cascade, Idaho Pine, Longview Fibre, and the Washington State Department of Natural Resources will be reviewed. Future agreements and supplements will insure that the tributary areas and volumes are in conformance with the prescriptions in this Management Plan. When they are adjusted and verified, they shall be included in the Plan by reference.

### 4. Forest Development Roads

Forest development roads are not public roads in the same sense as roads that are under the jurisdiction of public road agencies, such as States or counties. Forest development roads are not intended to meet the transportation needs of the public at large. Instead, they are authorized only for the administration and utilization of National Forest System lands. Although generally open and available for public use, that use is at the discretion of the Secretary of Agriculture. Through authorities delegated by the Secretary, the Forest Service may restrict or control use to meet specific management direction. Commercial users, permittees, or contractors also may be required to share in the cost of developing, improving, and maintaining forest development roads.

These are roads under the jurisdiction of the Forest Service which are necessary for the protection, administration, and utilization of the National Forest system, and the use and development of its resources (Title 23, USC 101, as amended by the Surface transportation Act of 1978).

#### Road Construction

1. Roads will be designed and constructed as stable and durable structures suitable for their intended use. Design elements and standards shall be selected to meet the criteria developed from land and resource plans. Standards for timber sale roads included in the contract as specified must comply with the Forest Service Manual. Deviations from standards must be justified and attested to in writing by the Forest Engineer as being technically adequate to meet management's objectives.

2. Plan and design temporary roads to re-establish vegetative cover on the disturbed area within a reasonable period of time, not to exceed 10 years after the termination of a contract, lease or permit, unless the road is determined necessary as a permanent addition to the National Forest Transportation System.

#### Road Reconstruction

1. Reconstruction of roads will be limited to the requirements necessary to provide for the intended uses and to protect adjacent resources.
2. Roads that do not meet standards may be operated without reconstruction providing the safety of users and the stability of the road can be otherwise provided. Minor reconstruction is authorized for spot repairs. Restrictions on public use for the duration of the project will be considered before more extensive reconstruction is authorized.

#### Road Operation

1. Road Closures- The decision to close any Forest road will be made on a case by case basis. Unless there is a resource need documented in the project analysis, currently open roads will remain open and newly constructed roads will be closed to public access by vehicle.

#### Fire, Administration, and Other (FA&O) Construction/Reconstruction

1. Facility project needs will be developed through site plan analysis, evaluated through the NEPA process and selected by using Regional FA&O criteria. Condition surveys will be performed annually with health and safety factors having high priority.
2. Consider the special needs of handicapped persons for employment opportunities, and in the design of public facilities.
3. Facilities should be planned, developed, and maintained and operated for safe use, support of the Forest resource programs, and cost effectiveness.

4. Buildings and utility systems construction and reconstruction, additions and changes, shall comply with approved site development plans.

5. The Administrative facilities management priorities are:

- A. Public and employee safety and health
- B. Prevention of site and interior and exterior building deterioration
- C. Energy conservation
- D. Minor improvements

6. Provide and manage administrative facilities sufficient to accomplish land and resource management and protection objectives of the Forest. Prepare administrative site development plans for all Forest administrative sites. Long-term development and maintenance costs will be a consideration in facilities planning.

## PROTECTION

### Fire Management Planning and Analysis

1. All wildfires will receive a prompt suppression response. Appropriate suppression strategies will include Control, Contain, and Confinement actions.
2. Priorities for protection will first be human life, followed by public safety and improvements.
3. If a fire escapes Initial Attack, an Escaped Fire Situation Analysis will be completed and approved by the responsible line officer. Efficiency will be emphasized.
4. The prevention of human caused wildfires will continue to be a management priority. The investment in this program will be commensurate with the values at risk.
5. Prescribed fire will be used to modify vegetation in an effort to minimize the risk of wildfires. Unplanned ignitions may be utilized if a prescribed fire plan has been developed and it is appropriate to the management area affected.

6. Prescribed fire will also be used as a resource management tool when appropriate planning indicates it is an efficient and effective option to implement. A prescribed fire that escapes is a wildfire and will receive an appropriate suppression response.

7. Develop and maintain preattack facilities in coordination with the management objectives of each specific management prescription.

### Law Enforcement

1. Maintain cooperative law enforcement agreements with Chelan, Kittitas, and Yakima Counties.

### Forest Pest Management

1. Survey stands for early detection of pest problems.
2. Coordinate with the Regional Forest Pest Management Unit for technical assistance.
3. Pesticide application will conform with EPA regulations and label restrictions, and will be made only after site specific evaluations have been made.
4. Utilize integrated pest management strategy to prevent unacceptable resource damage and to meet resource objectives in an economically efficient manner.
5. Manage timber to create conditions favorable for the prevention of pest damage.

## RESEARCH NATURAL AREAS

1. Normal management and protection activities within RNA's are the responsibility of the Forest Supervisor. Scientific and educational uses of RNA's are the responsibility of the Pacific Northwest Forest and Range Experiment Station. Extensive research use requires a cooperative agreement between the user and the Forest Service. The Forest Supervisor and District Ranger administering the affected Research Natural Area will be informed of mutually agreed

upon activities by the Experiment Station Director. However, a scientist should visit the administering Ranger Station when beginning the studies and explain the nature, purpose, and duration of the activities. Permission for brief visits to Research Natural Areas for observational purposes can be obtained from the District Ranger. Management practices should not call attention to these areas.

## BIODIVERSITY

1. Maintain or enhance biological diversity by providing or developing an ecologically sound distribution and abundance of plant and animal communities and species at the forest stand, subdrainage and Forest level. This distribution must contribute to the goal of maintaining or enhancing all native and desirable introduced species and communities.

2. Evaluate opportunities to maintain or enhance stand, subdrainage and Forest level components of biological diversity on a project by project basis as commensurate with management area direction. This evaluation will include project effects on the diversity (both visual and biological) and on wildlife and plant habitat in the subdrainage. If the project will reduce any of these components below the acceptable level as indicated by the management objectives for the sub-drainage the project may be altered to maintain diversity, or wildlife and plant habitat.

3. During project planning, areas of exceptional aesthetic value, unique wildlife or plant habitat or that contribute needed components for biological diversity may be found. These areas can be proposed through the District Ranger to the Forest Supervisor for inclusion into a prescription, special interest area or Research Natural Area (in consultation with the regional RNA committee) to preserve the appropriate area or forest ecologist and appropriate specialists will decide whether to amend the forest plan to allow a change in prescription (or classification) of the area in question. The Supervisor could also decide to protect the area until the next plan revision.

4. The most critical components of diversity (because they are relatively uncommon) include old growth and wildlife and plant habitat for rare species. Visual diversity is also an important consideration in project planning. Old growth stand in particular will often be important in the maintenance of biological diversity and aesthetic value.

Retain contiguous forest stands of later seral stages within 3rd and 4th order watersheds. Link patches of later seral stages with corridors of mid to late seral stages, such as riparian or visual corridors.

Identify subdrainages specific management objectives for fish and wildlife habitat and plants. These objectives should maintain or develop the habitat sizes, patterns and spacing essential for allowing genetic interchange and movement of species.

Where mature and old growth forest stands are managed for wildlife habitat, select and manage for stand characteristics and spatial location and size that will ensure viability of all plant and animal species closely associated with those habitats.

5. During project planning, develop site specific management prescriptions that meet objectives for biological diversity and ecosystem function. In addition to other management direction, consider the following guidelines:

Commercial forest management should provide for species diversity.

Tree species used in planting harvested units should be selected by considering site potential as indicated in plant association guides. Whenever appropriate a mixture of trees species should be planted.

Commercial and non-commercial thinning guidelines will incorporate the species diversity concept.

Vegetation management should allow for all natural species to function. None should be eliminated from the site.

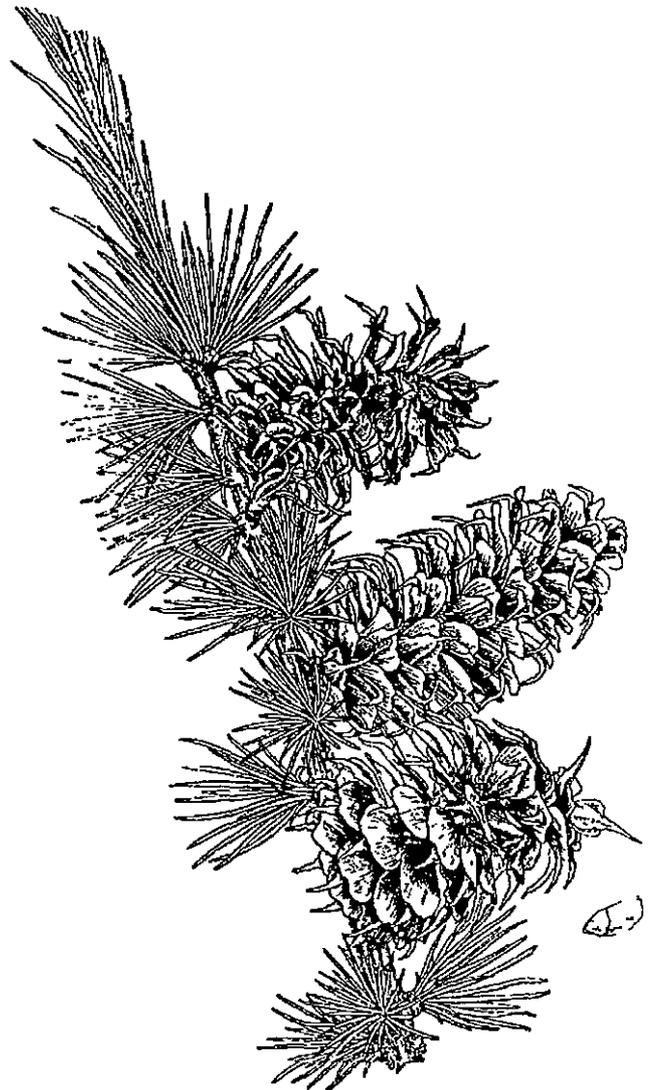
## **F. MANAGEMENT PRESCRIPTIONS**

The National Forest land within the Wenatchee National Forest has been divided into 24 management areas, each with different management goals, resource potential, and limitations. The management areas are shown on the accompanying map, which can be used for reference. The management area maps of record consist of a set of larger scale maps on file in the Forest Supervisor's Office.

*Boundaries of the management areas are not meant to require a ground survey for their placement. The actual placement on the ground for management purposes may vary a few hundred feet from the location on the map depending on the circumstances of the project. Disputes that arise will be handled on a case-by-case basis.*

Objectives shown represent minimum levels, higher objectives may be achieved.

Table IV-21 displays the acreage of the various management areas.



**TABLE IV-21  
MANAGEMENT AREA ACREAGES**

MANAGEMENT	AREA	ACRES
EF-1	Experimental Forest	4,770
EW-1	Key Deer and Elk Habitat	118,742
EW-2	Riparian-Aquatic Habitat Protection Zone	47,361
EW-3	Key Big Game Habitat	19,059
GF	General Forest	389,087
MP-1	Mather Memorial Parkway	13,717
OG-1	Old-Growth Management (dedicated)	79,840
OG-2	Mature Habitat (managed)	49,015
RE-1	Developed Recreation	6,021
RE-2a	Dispersed Recreation, Unroaded Motorized (w/o 4x4 routes)	79,607
RE-2b	Dispersed Recreation, Unroaded Motorized (w/ 4x4 routes)	16,748
RE-3	Dispersed Recreation, Unroaded Non-motorized	116,092
RE-4	Dispersed Recreation, Unroaded, Timber Harvest	6,614
RM-1	Range Management	17,702
RN-1	Research Natural Areas	2,247
SI-1	Classified Special Areas - Scenic and/or Recreation	70,512
SI-2	Classified Special Areas - Other	2,798
ST-1	Scenic Travel - Retention	83,635
ST-2	Scenic Travel - Partial Retention	174,880
UC-1	Utility Corridors	1/
WI-1	Wilderness	841,034
WS-1	Scenic River (Proposed)	5,554
WS-2	Recreational River (Proposed)	11,363
WS-3	Wild River (Proposed)	23,426 2/
Water		7,780

1/ Acres are distributed among other management areas adjacent to utility corridors

2/ All but 170 acres are within Wilderness

**Individual Prescriptions**

The following are the individual management area prescriptions which apply to the acreage shown in Table IV-21. They must be used along with the "Forest-wide" standards and guidelines.

**MANAGEMENT PRESCRIPTION EF-1**

**TITLE: Experimental Forest**

**GOAL STATEMENT:** Provide opportunities to study the effects of Forest management and fire on vegetative, soil, and water resources occurring on the east side of the Cascade Mountains. Maintain the area in a form that will not compromise the opportunities for research.

**DESCRIPTION:** The Entiat Experimental Forest was designated under the authority of the Chief of the Forest Service in 1970. Burned by wildfire in 1970, and rehabilitated and reforested in subsequent years, the area has been the subject of numerous scientific investigations. Currently the Experimental Forest is being managed for a wide range of multiple uses in coordination with the Forestry Sciences Laboratory in Wenatchee. Periodic monitoring will occur until vegetation reaches such a size as to have a significant effect on water production. New studies will be initiated at that time.

Objectives following the Entiat Burn in August 1970 were to study the effects of fire on complete hydrologic units.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<b>RECREATION</b>	Recreation Planning and Inventory	1 Visual Quality Objective MODIFICATION  2. Practices will be consistent with research objectives  3 Plan recreation activities to conform to the appropriate ROS class Semi-primitive to urban	
	Cultural Resource Evaluation, Assessment and Protection	1 Forest-wide Standards and Guidelines apply See p IV-66	
	Facility and Site Reconstruction and Construction	1 Forest-wide Standards and Guidelines apply See p IV-67 and IV-68	
	Facility and Site Management	1 Forest-wide Standards and Guidelines apply. See p IV-68	
	Use Administration	1 Forest-wide Standards and Guidelines apply See p IV-68	
	Trail Reconstruction	1 Practices will be consistent with research objectives	
	Trail Construction	1 Practices will be consistent with research objectives	
	Trail System Maintenance and Operation	1 Forest-wide Standards and Guidelines apply See p IV-69	



RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>TIMBER</u> (CONTINUED)</p>	<p>Reforestation</p> <p>Timber Stand Improvement</p> <p>Timber Sale Preparation and Timber Harvest Administration</p> <p>Nursery Management and Genetic Tree Improvement</p> <p>Timber Management Research</p>	<p>1. Activities shall be conducted under the guidance of and in harmony with research objectives</p> <p>1. Activities shall be conducted under the guidance of and in harmony with research objectives</p> <p>1. Activities shall be conducted under the guidance of and in harmony with research objectives</p> <p>1 No special practice</p> <p>1 All activities are prescribed to meet research goals and objectives</p>	
<p><u>WATER</u></p>	<p>Planning</p> <p>Improvement</p> <p>Administration and Management</p> <p>Rights and Use Management</p>	<p>1 Coordinate all activities with the Experimental Station Project Leader during planning and implementation of project</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-94 and IV-96</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-94 and IV-95</p> <p>1. Forest-wide Standards and Guidelines apply. See p IV-95 and IV-96</p>	
<p><u>SOIL</u></p>	<p>Planning and Inventory</p> <p>Improvement</p> <p>Administration and Management</p>	<p>1 Coordinate all activities with the Experimental Station Project Leader during planning and implementation of project</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-96</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-97</p>	
<p><u>AIR</u></p>	<p>Planning</p> <p>Administration and Management</p>	<p>1 Coordinate all activities with the Experimental Station Project Leader during planning and implementation of project</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-98</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>MINERALS AND GEOLOGY</u>	<p>Locatable Minerals</p> <p>Leasable Energy Minerals</p> <p>Common Variety Minerals</p> <p>Recreational Mineral Activities</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-98 and IV-99</p> <p>1 Recommend a stipulation be attached to leases which ensures the Experimental Forest is appropriately protected</p> <p>1 Allow disposal where removal will not significantly affect the Experimental Forest objectives</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-99</p>	
<u>RURAL COMMUNITY AND HUMAN RESOURCES</u>		<p>1 Forest-wide Standards and Guidelines apply See p IV-99 and IV-100</p>	
<u>LANDS</u>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Property Line Location Property Boundary and Corner Maintenance</p> <p>Landownership Planning, Land Adjustment Planning and All Adjustment Activities</p> <p>Rights-of-Way Cost-Share Agreements</p>	<p>1 Avoid locating transportation and utility corridors in the Experimental Forest</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-100</p> <p>1 Recommend only compatible uses</p> <p>1. Forest-wide Standards and Guidelines apply. See p IV-100</p> <p>1 National Forest ownership is preferred</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-101</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>FACILITIES</u>	<p>Road Construction</p> <p>Road Operation</p> <p>FA&amp;O Construction and Reconstruction</p>	<p>1 Provide and manage roads as needed to accomplish research goals</p> <p>1 Prohibit or eliminate road use inconsistent with research objectives</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-102 and 103</p>	
<u>PROTECTION</u>	<p>Fire Prevention</p> <p>Fire Suppression</p> <p>Fire Hazard Abatement</p> <p>Preattack Facilities Development</p> <p>Law Enforcement</p> <p>Forest Pest Management</p>	<p>1 Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan</p> <p>1. Implement fire suppression strategies that attempt to protect the unique research values specific to each research natural area</p> <p>2 Fire suppression tactics should be implemented that attempt to protect the experimental nature of these areas</p> <p>1 Treatment of both activity generated and natural fuels is appropriate when coordinated with the specific experimental activities of the area Coordination with the Experiment Station project leader is essential</p> <p>1 Develop only those preattack facilities which support the objectives of the experimental forest</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-103</p> <p>1 Insect and disease outbreaks should be suppressed when studies are threatened and /or unacceptable damage to resources would occur if no controls are applied</p> <p>2 Research should develop and/ or follow sound Integrated Pest Management (IPM) principles</p> <p>3 Utilize IPM strategies to prevent unacceptable pest damage and meet resource objectives</p> <p>4 Coordinate all activities with the Experimental Station Project Leader during planning and implementation of project.</p>	

**MANAGEMENT PRESCRIPTION: EW-1**

**TITLE: Key Deer and Elk Habitat**

**GOAL STATEMENT:** *Manage deer and elk winter range to meet habitat requirements for sustaining optimum carrying capacity.*

**DESCRIPTION:** Deer and elk winter ranges are generally on the edge of the Forest, adjacent to or intermingled with, other land ownerships, at low elevations, south and/or east facing slopes with reduced snow depth and early melt-off of snow. Because of these conditions these areas are highly desired for winter and/or early spring recreation activities and dry out early to become high fire danger areas. These habitats have openings covering 10 to 60 percent of the area (used by big game for foraging), containing shrubs, grasses, and forbs with scattered conifer trees, and 20 to 80 percent covered by conifer stands (used by big game for cover). The quality of the forage and the amount of thermal cover combined with the amount of human disturbance are the factors that determine the carrying capacity of these areas for big game in winter.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<b>RECREATION</b>	Recreation Planning and Inventory	1 Visual Quality Objective MODIFICATION	1. Coordinate with the Washington Department of Wildlife to identify biological objectives
		2 Manage in a Semi-Primitive Non-Motorized to Roaded Modified Recreation Opportunity Spectrum	
	Cultural Resource Evaluation, Assessment and Protection	1 Forest-wide Standards and Guidelines apply. See p IV- 66	
	Facility and Site Reconstruction and Construction	1 Construction and reconstruction of facilities will be designed to minimize impacts on big game.	
	Facility and Site Management	1. Forest-wide Standards and Guidelines apply See p. IV- 68	
	Use Administration	1. Motorized access will be managed when and where needed to meet biological objectives	
	Trail Reconstruction and Construction	1 Construction and reconstruction of trails will be designed to minimize impacts on big game.	
Trail System Maintenance and Operation	2. As opportunities become available, build trails to view big game where appropriate.		

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p>	<p>1 Develop optimum cover/forage relationships for each Species Management Guide</p> <p>2 Big horn sheep requirements will take precedence over deer or elk management, where sheep are present or where sheep habitat exists</p> <p>3 Activities in deer and elk winter range will be limited to corridors for access to other areas from December 1 to April 15 Activities are defined as any human movement that causes the animals distress ( i e , snowmobiling, x-country skiing, rock or ice climbing, hunting, hiking, logging, road building, motorcycle riding, 4-wheel driving etc ) Habitat improvement activities are excluded</p> <p>4 Activity closures earlier than December 1 or later than April 15, may be established by District Rangers for each big game management area in cooperation with the Washington Department of Wildlife</p> <p>5 Restrict activities to allow big game to fully utilize habitat</p> <p>6 Winter range, north of the Wenatchee River, will be managed for deer</p> <p>7 Winter ranges will be managed in cooperation with Washington Department of Wildlife to reduce damage to neighboring private lands</p> <p>8 Manage primary cavity excavators at 60 percent of the potential population level</p>	<p>1 In wildlife habitats in managed forests, optimum cover is 40% and optimum forage is 60%</p>
	<p>Non-Structural Habitat Improvement</p>	<p>1 Use all available techniques for habitat improvements</p> <p>2 Habitat improvements will be done to increase big game carrying capacity and provide more flexibility for timber management</p>	<p>1 The optimum objective for habitat effectiveness index for deer and elk will be 80 Areas that cannot be managed at that level will be managed for the highest level possible</p>
	<p>Structural Habitat Improvement</p>	<p>1 Habitat improvements will be done to increase big game carrying capacity and provide more flexibility for timber management.</p>	



RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>TIMBER</u></p>	<p>Regeneration Harvest</p>	<p>1. Use harvest methods compatible with the goal to maintain or improve habitat</p>	
	<p>Intermediate Harvest</p>	<p>1 Allow commercial thinning that will maintain at least 40 percent thermal cover and 10 percent hiding cover</p>	
	<p>Silvicultural Examination and Prescription</p>	<p>1. Make stand examinations prior to any activity.  2 Design silvicultural prescriptions to meet big game needs</p>	
	<p>Reforestation</p>	<p>1 Reforestation will be aimed at achieving sustained optimum cover/forage relationships</p>	<p>1 Plant all non-stocked areas following regeneration harvest to achieve habitat effectiveness objectives Use genetically superior stock as available  2 Protect plantations against animal damage to achieve habitat effectiveness objectives.</p>
	<p>Timber Stand Improvement</p>	<p>1 Thin to provide optimum cover/forage relationships</p>	<p>1. Precommercially thin to achieve habitat effectiveness objectives</p>
	<p>Timber Sale Preparation and Timber Harvest Administration</p>	<p>1 The environmental analysis will address big game issues  2 Created openings will be considered closed when tree heights are 6 feet tall in deer areas and 8 feet tall in elk areas  3 A habitat effectiveness analysis will be done immediately before, immediately after, and ten years after project.  4. Activities will avoid conflicts with winter, spring, and fall use by big game  5 Timber harvesting or road building activities will be scheduled to avoid conflicts with big game fawning and calving</p>	<p>1 The optimum objective for habitat effectiveness index for deer and elk will be 80 Areas that cannot be managed at that level will be managed for the highest level possible</p>
	<p>Nursery Management</p>	<p>1. Perform as required to meet reforestation program needs including allowance for natural disasters.</p>	<p>1 Cone collection  2 Seed certification.</p>
	<p>Genetic Tree Improvement</p>	<p>1. No special practice.</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>WATER</u>	Planning  Improvement  Administration and Management  Rights and Use Management	1. Forest-wide Standards and Guidelines apply See p. IV- 94  1. Forest-wide Standards and Guidelines apply See p IV-94 and 96  1 Forest-wide Standards and Guidelines apply. See p. IV-94 and 95  1 Forest-wide Standards and Guidelines apply. See p IV- 95 and 96	
<u>SOIL</u>	Planning and Inventory  Improvement  Administration and Management	1 Forest-wide Standards and Guidelines apply See p. IV- 96  1. Forest-wide Standards and Guidelines apply See p IV- 96  1. Forest-wide Standards and Guidelines apply See p IV- 97	
<u>AIR</u>	Planning  Administration and Management	1 Forest-wide Standards and Guidelines apply See p IV- 98  1 Forest-wide Standards and Guidelines apply See p IV- 98	
<u>MINERALS AND GEOLOGY</u>	Locatable Minerals  Leasable Energy Minerals  Common Variety Minerals  Recreational Mineral Activities	1 If reasonable, during pre-production stages recommend mineral prospecting, exploration and development activities be conducted during other than the critical use seasons (i e., critical winter, spring and fall use periods).  1 Recommend stipulations be attached to leases and permits which reasonably restricts pre-production activities during the critical use season  1 Same as for Locatable Minerals above.  1 If the activity would significantly affect big game use of the area during the critical use season do not approve it	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RURAL COMMUNITY AND HUMAN RESOURCES</u></p>		<p>1 Forest-wide Standards and Guidelines apply See p IV-99 and 100</p>	
<p><u>LANDS</u></p>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Property Line Location Property Boundary and Corner Maintenance</p> <p>Landownership Planning, Land Adjustment Planning, and All Adjustment Activities</p> <p>Rights-of-Way, Cost-Share-Agreements</p>	<p>1 Utility corridors are permitted subject to determination of need and requirements necessary to protect key big game habitat</p> <p>2 Manage special uses to maintain the goals of the Species Management Guide</p> <p>1 Grant necessary road/trail access to landlocked inholders, but keep public access to a minimum during winter, spring, and fall</p> <p>1 Recommend only compatible uses</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-100</p> <p>1 National Forest or Washington Department of Wildlife ownership of winter range areas is preferred</p> <p>1 Big game needs will be resolved during negotiation of cost share agreements</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>FACILITIES</u></p>	<p>Road Construction</p>	<p>1 Construct the least amount of the lowest standard road necessary to accomplish the project objectives</p>	<p>1 Screen meadows, clearcuts, and other openings with vegetation or topography</p>
	<p>Road Operation</p>	<p>1 Emphasize road closures to reduce impact on wildlife</p> <p>2 Prohibit or eliminate road use inconsistent with wildlife goals</p> <p>3 Restrict operating season when necessary to reduce impact on wildlife</p>	<p>2 Do not block elk and deer migration routes with road cuts and fills</p> <p>3 Where roads cross elk and deer migration routes, use minimum clearing and sight distance</p> <p>4 Locate roads so that they may be closed</p> <p>5 Avoid straight sections of road of more than 1/4 mile.</p> <p>6 Fall only those snags that present a safety hazard</p> <p>7 To the extent practical, avoid the disturbance of cliffs, caves, talus, and other limited habitats</p> <p>8 To the extent practical, avoid locating roads in migration routes, saddles, gaps, bands around ridges, streams, seeps, and springs, and cover areas that are in locations generally deficient in cover</p> <p>9 To the extent practical, wind-row or pile slash to provide cover</p> <p>10 Provide openings in wind-rowed, piled, scattered slash at all known wildlife crossings and at a minimum of every 100 feet</p>
	<p>FA&amp;O Construction and Reconstruction</p>	<p>1 To the extent practical, avoid construction in these areas</p> <p>2 Consider removing any facility not compatible with wildlife goals</p> <p>3 Structures intended to benefit wildlife or facilitate management of wildlife permitted</p>	<p>1. (See the Forest-wide standards and guidelines for wildlife and Fish )</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>PROTECTION</u></p>	<p>Fire Prevention</p>	<p>1 Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan</p>	
	<p>Fire Suppression</p>	<p>1 Implement fire suppression strategies commensurate with the habitat management objectives</p> <p>2 All fire suppression tactics and resources may be appropriate</p>	
	<p>Fire Hazard Abatement</p>	<p>1 Treatment of both natural and activity generated fuels is appropriate when consistent with the habitat management objectives of the specific area</p>	
	<p>Preattack Facilities Development</p>	<p>1 Develop preattack facilities in coordination with the habitat management objectives of each specific area</p>	
	<p>Law Enforcement</p>	<p>1 Forest-wide Standards and Guidelines apply See p. IV-103</p>	
	<p>Forest Pest Management</p>	<p>1. Suppress insects and diseases when necessary to protect resource values</p> <p>2 Utilize Integrated Pest Management strategies to prevent unacceptable pest damage and meet resource objectives.</p>	

**MANAGEMENT PRESCRIPTION: EW-2**

**TITLE: Riparian-Aquatic Habitat Protection Zone**

**GOAL STATEMENT:** Maintain and enhance riparian management areas to perpetuate their distinctive resource values to (a) achieve and maintain habitat conditions necessary to maximize long-term natural production opportunities for desired fish species, (b) maintain water quality that meets or exceeds State Standards and (c) provide diverse wildlife habitat.

**DESCRIPTION:** This prescription applies to the land and vegetation adjacent to Class I, II and fish bearing Class III streams, lakes and wetlands. The Riparian Management Area (RMA) shall correspond to at least the recognizable area dominated by riparian vegetation (true Riparian Zone) and sufficient adjacent area (influence area) to assure adequate protection to achieve riparian management objectives and standards in the subdrainage. The area of consideration, from both banks of fish bearing streams and the perimeter of lakes and wetlands, is as defined in the variable width table found in the Forest-wide Riparian Standards and Guidelines

Riparian Management Area boundaries and specific riparian management objectives will be established for all projects within an RMA. Riparian management objectives will be established based upon analysis of RMA habitat conditions, objectives and standards both within the subdrainage (generally 1,000-10,000 acres) and at the project site.

Within Riparian Management Areas, management decisions will be made in favor of riparian dependent resources (water quality, fish and wildlife habitat) when conflicts exist with man's use.

Refer to the Forestwide Standards and Guidelines for Riparian Areas for overall direction on the planning and administration of management activities in RMAs. Refer to the "Administration" section in the Forest-wide Standards and Guidelines for Riparian Areas for a discussion of the use and refinement of applicable quantitative standards.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<b>RECREATION</b>	Recreation Planning and Inventory	1 Forest-wide Standards and Guidelines apply. See p. IV-65 and 66  2. New developed recreation sites or expansions to existing sites will not reduce flood storage or routing ability and will minimize conflicts with Riparian dependent resources All new projects will consider Riparian management objectives.	1 Range of Visual Quality Objectives (VQO) from Retention to Modification The VQO applied will be dictated by the adjacent visual resource prescription and will be managed compatible with the goal of this Riparian Aquatic Protection Zone  2. Allow dispersed sites when compatible with the goal and Riparian Standards
	Cultural Resource Evaluation and Assessment	1 Forest-wide Standards and Guidelines apply See p. IV-66	1. Extraordinary measures may be needed in this zone due to hydraulic actions. Measures may include bank stabilization or cultural resource salvage
	Cultural Resource Protection	1. Forest-wide Standards and Guidelines apply See p IV-66	Authorized excavation of cultural resources shall be conducted in a manner which best maintains riparian habitat and include necessary rehabilitation measures

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u> (continued)</p>	<p>Facility and Site Reconstruction</p> <p>Facility and Site Construction</p> <p>Facility and Site Management</p> <p>Use Administration</p> <p>Trail Reconstruction</p> <p>Trail Construction</p> <p>Trail System Maintenance and Operation</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-67 and 68</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-68</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-68</p> <p>1 The Recreation Opportunity Spectrum applied will be dictated by the adjacent prescription</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-68</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-68 and 69</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-69</p>	<p>1 When feasible relocate camp units outside the zone</p> <p>1 New sites will not be built in the floodplain</p> <p>1 To the extent practical locate and relocate trails outside of the Riparian/Aquatic protection zone</p> <p>2 New trails, except for interpretative trails or those designed specifically to access Riparian resources should not be built within the RMA's</p>
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p> <p>Habitat Improvement</p> <p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-80 through 83</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-83 and 84</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-85 through 88</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>RANGE</u>	<p>Range Planning and Inventory</p> <p>Range Non-Structural Improvements</p> <p>Range Structural Improvements</p> <p>Range Structural Improvement Maintenance</p> <p>Range Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 88 and 89</p> <p>1. Forest-wide Standards and Guidelines apply. See p IV-89 and 92</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-89</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV-89</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV-89</p>	<p>1 Grazing will be permitted in the RMA when compatible with the RMA objectives</p> <p>2 Management of the range resource will feature an intensive scheme</p> <p>3 Allotment management plans will be designed to maintain or enhance riparian habitat Allotment plans will establish riparian habitat objectives and if conditions are not meeting objectives establish a schedule for recovery.</p> <p>4 Use forage species which will enhance the riparian management area</p> <p>1 Improvements will be allowed when compatible with riparian management objectives and include provisions to maintain / improve habitat</p>
<u>TIMBER</u>	<p>Regeneration Harvest</p> <p>Intermediate Harvest</p> <p>Silvicultural Examination and Prescription</p> <p>Reforestation</p> <p>Timber Stand Improvement</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-92</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-92</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-92</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-92 and 93</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV-93</p>	<p>1 Adjust harvest for specific goals in individual Riparian Zones to meet forest-wide riparian standards.</p> <p>2. Maintain trees providing bank stability</p> <p>1 Salvage will generally be discouraged Review any such harvest to insure consistency with RMA objectives.</p> <p>1. Allow precommercial thinning when consistent with management objectives in the subdrainage</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><b>TIMBER</b> (continued)</p>	<p>Timber Sale Preparation and Timber Harvest Administration</p> <p>Nursery Management and Genetic Tree Improvement</p> <p>Reforestation Animal Control</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-93 and 94</p> <p>1. No special practice.</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV-92 and 93</p>	<p>1 Give special emphasis to administration within the zone</p> <p>2 Directionally fall timber away from water courses unless such work is prescribed as a habitat improvement measure</p> <p>3 Protect snags from all incompatible uses.</p> <p>4 Remove convertible products (e.g firewood) only from designated areas</p>
<p><u><b>WATER</b></u></p>	<p>Planning</p> <p>Improvement</p> <p>Administration and Management</p> <p>Rights and Use Management</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV-94</p> <p>1. Forest-wide Standards and Guidelines apply. See p. IV-94 and 96</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-94 and 95</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-95 and 96</p>	
<p><u><b>SOIL</b></u></p>	<p>Planning and Inventory</p> <p>Improvement</p> <p>Administration and Management.</p>	<p>1. Forest-wide Standards and Guidelines apply. See p IV-96</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-96</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-97</p>	<p>1. Maintain slope stability in and adjacent to the riparian management area.</p> <p>The minimum distance for RMA consideration is 100 foot horizontal distance from the ordinary high water line associated with both banks of streams and the perimeter of lakes and wetlands.</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>AIR</u>	<p>Planning</p> <p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-98</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV- 98</p>	
<u>MINERALS AND GEOLOGY</u>	<p>Locatable Minerals</p> <p>Leasable Energy Minerals</p> <p>Common Variety Minerals</p>	<p>1 If a mineable deposit does not underlie this zone and if it is reasonable, limit significant surface disturbing activities to areas outside the Riparian-Aquatic zone</p> <p>2 Establish reasonable reclamation requirements in approved operating plans that ensure the riparian habitat is reasonably restored or complemented</p> <p>3 If the area is identified as water and associated wetlands as defined in 33 CFR 328, unless categorically exempted by 33 CFR 323.4, ensure dredging activities are conducted in compliance with section 404 of the Clean Water Act and a Corps of Engineers permit is obtained</p> <p>1 If reasonable, attach stipulations to a lease that require significant surface disturbing activities to be conducted outside of the Riparian-Aquatic zone.</p> <p>1 If removal would significantly impact the Riparian-Aquatic zone and reasonable reclamation is not achievable, do not permit the removal of these mineral resources</p> <p>2 Establish reasonable reclamation objectives which either restore the habitat or complement it.</p>	
<u>RURAL COMMUNITY AND HUMAN RESOURCES</u>		<p>1 Forest-wide Standards and Guidelines apply See p IV-99 and 100</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>LANDS</u></p>	<p>Special Use Management</p>	<p>1 Utility corridors are permitted subject to determination of need and requirements necessary to protect the riparian resource Include measures to minimize or mitigate resource damage, where permitted</p>	<p>1 Retain National Forest lands and acquire private inholdings on an opportunity basis</p>
	<p>Right-of-Way Grants for Roads and Trails</p>	<p>1 Grant access only where no other feasible options exist. 2 Relocate and Rehabilitate roads whenever possible</p>	
	<p>Federal Energy Regulatory Commission License and Permits</p>	<p>1 Allow where compatible and mitigate when zone is adversely affected Coordinate with Northwest Power Planning Councils protected area designation</p>	
	<p>Property Line Location Property Boundary and Corner Maintenance</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 100</p>	
	<p>Landownership Planning, Land Adjustment Planning, and All Adjustment Activities</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-100 and 101</p>	
<p><u>FACILITIES</u></p>	<p>Road Construction</p>		<p>1 Locate roads outside the zone to the extent practical.</p>
	<p>Road Operation</p>	<p>1. Road use will be designed by project planning, design criteria, and Forest Management Objectives</p>	<p>2 When a prudent and feasible alternative exists, abandon or relocate existing roads 3 To the extent practical, create new or replacement habitat in the location, design and operation of road related rock pits, borrow areas and other disturbed sites</p>
	<p>FA&amp;O Construction and Reconstruction</p>	<p>1 Locate FA&amp;O structures outside the zone to the extent practical 2 Solid waste landfills will not be permitted in the zone 3 Transfer systems will be allowed if they are compatible with Forest standards</p>	<p>4 Restrict activities to time periods most suited to minimize unavoidable impacts 5 Maintain or enhance hydraulic flow consistent with habitat requirements 6 To the extent practical, cross habitat with structures rather than fill Use a 90 degree crossing where possible See FSH 7709 56b Drainage Structures Handbook, or revision</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>FACILITIES</u> (continued)</p>			<p>7 Provide for erosion control during and after construction (sediment traps, revegetation, etc ) All roads within this zone shall have an erosion resistant surface. Vegetation is the preferred surface on closed roads</p> <p>8 No channelization, stream relocation or associated activity will be approved if a feasible alternative exists</p> <p>9 In projects where channelization is undertaken, the design will provide that the aquatic habitat is restored to original or better condition</p> <p>10 All new road construction will maintain or enhance fish passage Follow the guidelines in Engineering Technical report ETR 7700-5 "Fish Versus Culverts" or revision</p> <p>11 To the extent practical, correct existing barriers to fish passage; inventory road related passage obstructions and prioritize for corrective measures</p>
<p><u>PROTECTION</u></p>	<p>Fire Prevention</p> <p>Fire Suppression</p> <p>Fire Hazard Abatement</p> <p>Preattack Facilities Development</p> <p>Law Enforcement</p> <p>Forest Pest Management</p>	<p>1. Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan.</p> <p>1. Implement fire suppression strategies commensurate with the habitat management objectives</p> <p>2. All fire suppression tactics and resources may be appropriate Emphasize maintenance and enhancement of sub-drainage objectives</p> <p>1. Forest-wide Standards and Guidelines apply See p IV- 103</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV- 103</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-103</p> <p>1 Suppress Forest pests when they adversely affect the vegetation component essential for maintaining the zone and/or when unacceptable damage to resources would occur if no controls are applied</p>	<p>1 Generally tractors will not be compatible</p> <p>1 Treatment of activity generated and natural fuels is appropriate when compatible with the subdrainage objectives.</p> <p>1 Develop preattack facilities when compatible with the habitat objectives</p> <p>1 Use suppression techniques which avoid or minimize degradation of water quality as determined by state Forest practices</p> <p>2 Utilize Integrated Pest Management strategies to prevent unacceptable damage and meet resource objectives</p> <p>3 Rodenticides should not be used in this allocation</p>

**MANAGEMENT PRESCRIPTION: EW-3**

**TITLE: Key Big Game Habitat/Unroaded**

**GOAL STATEMENT:** Manage deer, elk, and mountain goat winter range and key summer range to meet habitat requirements for sustaining optimum carrying capacity in an unroaded setting.

**DESCRIPTION:** Deer and elk winter ranges are generally at low elevations, on south and/or east facing slopes with reduced snow depth and early melt-off of snow. Because of these conditions, these areas are highly desirable for winter and early spring recreation activities, and dry out early to become high fire danger areas. These habitats have 10-60 percent of the area in openings (used by big game for foraging) containing shrubs, grasses, and forbs with scattered conifer trees, and 20-80 percent of the area in conifer stands (used by big game for cover). The quality of the forage and the amount of thermal cover combined with the amount of human disturbance are the factors that determine the carrying capacity of these areas for big game in winter. Mountain goat summer and winter ranges are generally adjacent to each other at high elevations, well within the Forest, and just above and below the line separating suitable and unsuitable timber harvesting stands. Summer range consists of dense stands of old conifer trees intermingled with small meadows that provide food and shelter. Winter range consists of open, steep, rocky ridges with grasses, forbs, and shrubs dominating a landscape containing scattered conifer trees. Human activity, reductions in winter habitat, and lack of quality forage in summer range limit the populations of mountain goats.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>Recreation</u></p>	<p>Recreation Planning and Inventory</p> <p>Cultural Resource Evaluation, Assessment and Protection</p> <p>Facility and Site Reconstruction and Construction</p> <p>Facility and Site Management</p> <p>Use Administration</p>	<p>1. Visual Quality Objective Retention</p> <p>2 Plan recreation activities to conform to ROS class setting criteria: Semi-primitive non-motorized or semi-primitive motorized</p> <p>3 Motorized recreation activities may be planned only when compatible with big game habitat objectives</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-66</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-67 and 68</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-68</p> <p>1 Recreation visitor activities will be encouraged that are compatible with prescription goals</p>	<p>1 Coordinate with the Washington Department of Wildlife to identify areas where there is a need to meet biological objectives</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u> (continued)</p>	<p>Trail Reconstruction and Construction</p> <p>Trail System Maintenance and Operation</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-68 and 69</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-69</p>	
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p> <p>Non-Structural Habitat Improvement</p> <p>Structural Habitat Improvement</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV-80 through 82</p> <p>2 Manage primary cavity excavators at 95 percent of the potential population level</p> <p>1 Develop optimum cover/forage relationships</p> <p>2 Prescribed fire will be considered where appropriate to simulate natural fire vegetative succession and maintain key big game habitat</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 83 and 84</p>	<p>1 The optimum objective for habitat effectiveness index for deer and elk will be 80 Areas that cannot be managed at that level will be managed for the highest level possible Mountain goat areas will be managed for a 50/50 cover/forage ratio</p>
<p><u>RANGE</u></p>	<p>Range Planning and Inventory</p> <p>Range Non-Structural Improvements</p> <p>Range Structural Improvement Maintenance</p> <p>Range Administration and Management</p>	<p>1 Grazing of suitable range by livestock shall emphasize range management practices that maximize the production of key forage species for big game</p> <p>1. Emphasize big game forage species in range forage improvement projects</p> <p>1 Emphasize big game needs in the design and application of range improvements Reconstruct, relocate, or eliminate existing range improvements that are detrimental to big game</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-89</p> <p>1 Forest-wide Standards and Guidelines apply</p>	<p>1 Management seeks to optimize production of forage allocated to Wildlife consistent with maintaining the environment and providing for livestock use of the range Practices may be selected and used to develop cost-effective methods for achieving improved forage supplies and uniform livestock distribution and forage</p> <p>1. Cultural practices such as brush control, fertilization, site preparation, and seeding of improved forage species may be used to improve quality and quantity of wildlife forage</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>TIMBER</u>	<p>Regeneration Harvest</p> <p>Intermediate Harvest</p> <p>Silvicultural Examination and Prescription</p> <p>Reforestation</p> <p>Timber Stand Improvement</p> <p>Timber Sale Preparation and Timber Harvest Administration</p> <p>Nursery Management</p> <p>Genetic Tree Improvement</p>	<p>1 No scheduled harvest Use harvest methods compatible with the goal to maintain or improve habitat</p> <p>1 Intermediate harvest will depend upon big game needs</p> <p>1 Make examinations prior to any activity and as required for certification of reforestation and thinning</p> <p>2 Design silvicultural prescriptions to meet big game needs</p> <p>1 Reforestation will be aimed at achieving optimum cover/forage relationships</p> <p>1 Thin to provide optimum cover/forage relationships where necessary</p> <p>1 All inventories and plans will include a habitat effectiveness analysis</p> <p>1 Perform as required to meet reforestation program needs including allowance for natural disasters</p> <p>1. No special practice</p>	<p>1 Stand examination</p> <p>1 Plant all non-stocked areas following regeneration harvest to achieve habitat effectiveness objectives Use genetically superior stock as available.</p> <p>2 Protect plantations against animal damage to achieve habitat effectiveness objectives</p> <p>1 Precommercially thin to achieve habitat effectiveness objectives.</p> <p>1 The optimum objective for habitat effectiveness index for deer and elk will be 80 Areas that cannot be managed at that level will be managed for the highest level possible Mountain goat areas will be managed for a 50/50 cover/forage ratio</p> <p>2 Created openings will be considered closed when tree heights are 6 feet tall in deer areas and 8 feet tall in elk areas</p> <p>1. Cone collection</p> <p>2 Seed certification</p>
<u>WATER</u>	<p>Planning</p> <p>Improvement</p> <p>Administration and Management</p> <p>Rights and Use Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-94</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 94 and 96</p> <p>1 Forest-wide Standards and Guidelines apply. See p. IV- 94 and 95</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 95 and 96</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>SOIL</u>	Planning and Inventory	1 Forest-wide Standards and Guidelines apply See p IV-96	
	Improvement	1 Forest-wide Standards and Guidelines apply See p IV-96	
	Administration and Management	1 Forest-wide Standards and Guidelines apply See p IV-97	
<u>AIR</u>	Planning	1 Forest-wide Standards and Guidelines apply. See p. IV-98	
	Administration and Management	1 Forest-wide Standards and Guidelines apply See p IV-98	
<u>MINERALS AND GEOLOGY</u>	Locatable Minerals	1. If reasonable, during pre-production stages, recommend mineral prospecting, exploration, and development activities be conducted during other than the critical use season (critical winter, spring, and fall use periods)  2. If reasonable, limit access for pre-production prospecting and exploration activities to existing 4x4 routes and trails  3. If roading is necessary and incidental to proposed mineral prospecting, exploration and development activities, approve the activity and prescribe appropriate mitigation	
	Leasable Energy Minerals	1. Recommend stipulations be attached to leases and permits which reasonably restricts pre-production activities during the critical use season, and restricts access as indicated above	
	Common Variety Minerals	1. Same as for Locatable Minerals above	
	Recreational Mineral Activities	1 Access for conducting these activities shall be in keeping with the management goals for the area. If the activity would significantly affect big game use of the area during the critical use period do not approve it.	
<u>RURAL COMMUNITY AND HUMAN RESOURCES</u>		1. Forest-wide Standards and Guidelines apply See p IV-99 and 100	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>LANDS</u>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Property Line Location Property Boundary and Corner Maintenance</p> <p>Landownership Planning, Land Adjustment Planning, and All Adjustment Activities</p> <p>Rights of Way Cost-Share Agreements</p>	<p>1. Avoid locating transportation and utility corridors in key big game habitat</p> <p>2. Grant permits only for compatible uses</p> <p>1. Grant necessary road/trail access to landlocked inholders</p> <p>1. Recommend only compatible uses</p> <p>1. Forest-wide Standards and Guidelines apply See p IV- 100</p> <p>1 National Forest or Washington Department of Wildlife ownership of winter range areas is preferred</p> <p>1. Big game needs will be resolved during negotiation of cost share supplements</p>	
<u>FACILITIES</u>	<p>Road Construction</p> <p>Road Operation</p> <p>FA&amp;O Construction and Reconstruction</p>	<p>1 No roads will be constructed or maintained except that a. Reasonable access will be granted to landlocked inholders under then prevailing guidelines b. Short term roads may be constructed to protect adjacent resources</p> <p>1 Prohibit or eliminate road use inconsistent with big game objectives</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-102 and 103</p>	
<u>PROTECTION</u>	<p>Fire Prevention</p> <p>Fire Suppression</p> <p>Fire Hazard Abatement</p>	<p>1. Implement a high intensity fire prevention program as outlined in the Forest's Fire Management objectives</p> <p>1 Implement fire suppression strategies commensurate with the habitat management objectives</p> <p>2 All fire suppression tactics and resources may be appropriate</p> <p>1 Treatment of both activity generated and natural fuels is appropriate when coordinated with the habitat management objectives of each specific area</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>PROTECTION</u> (continued)</p>	<p>Preattack Facilities Development</p> <p>Law Enforcement</p> <p>Forest Pest Management</p>	<p>1 Develop preattack facilities in coordination with the habitat management objectives of the specific area</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-103</p> <p>1 Suppress insects and diseases when adversely affecting vegetation essential for maintaining wildlife and/or unacceptable damage to resources would occur if no controls are applied</p> <p>2 Utilize Integrated Pest Management strategies to prevent unacceptable pest damage and meet resource objectives</p>	

**MANAGEMENT PRESCRIPTION: GF**

**TITLE: General Forest**

**GOAL STATEMENT:** Provide for long-term growth and production of commercially valuable wood products at a high level of investment in silvicultural practices.

**DESCRIPTION:** Future stands will vary from intensive timber management typified by regular spacing, relatively even age and height, to those that are similar to natural stands. Regenerated stands will have a high ratio of genetically superior stock and may receive cultural treatments throughout the rotation. The cultural practices will be determined on a site specific basis depending on the biological and economic conditions of the stand. Regeneration harvest will generally occur at culmination of mean annual increment. Logging will be by the most economical methods compatible with silvicultural requirements, soil and water standards and landform. Road densities and standards would also be dependent upon these conditions. In the General Forest area, the relative intensity of management is set by the Forest Plan. However, site specific details and locations of treatments will be determined in the prescription written or field reviewed by a certified silviculturist.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u></p>	<p>Recreation Planning and Inventory</p>	<p>1 Visual Quality Objective MAXIMUM MODIFICATION</p> <p>2 Plan timber harvest and other vegetative treatments to meet ROS setting objectives for applicable class, roaded natural to urban</p>	<p>1 Cutting units may dominate natural patterns but must repeat natural form, line, color and texture.</p> <p>2 Provide a variety of age classes</p> <p>3 Cutting units should generally avoid obliteration of high use dispersed recreation sites and other specific locations of special interest to recreation visitors</p> <p>4 A higher VQO may be considered along roads, trails and dispersed sites within this prescription</p>
	<p>Cultural Resource Inventory Evaluation, Assessment and Protection</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV- 66</p>	
	<p>Facility and Site Reconstruction and Construction</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-67 and 68</p>	
	<p>Facility and Site Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-68</p>	
	<p>Use Administration</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-68</p>	
	<p>Trail Reconstruction and Construction</p>	<p>1. Construct new trails or relocate existing trails outside of this prescription if recreation management and trail objectives can be met</p>	
	<p>Trail System Maintenance and Operation</p>	<p>1 Forest-wide Standards and Guidelines apply See p. IV- 69</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>WILDLIFE AND FISH</u>	<p>Wildlife Surveys and Plans</p> <p>Non-Structural Habitat Improvement</p> <p>Structural Habitat Improvement</p>	<p>1 Manage primary cavity excavators at 20 percent or higher of the potential population level</p> <p>1 To the extent practical schedule timber harvest to meet the needs for big game diversity, especially adjacent to winter range</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-83 and 84</p>	
<u>RANGE</u>	<p>Range Planning and Inventory</p> <p>Range Non-Structural Improvements</p> <p>Range Structural Improvements</p> <p>Range Structural Improvement Maintenance</p> <p>Range Administration and Management</p>	<p>1. Grazing of suitable range by livestock shall emphasize range management practices that favor timber production</p> <p>2 Management of the range resource under this prescription will feature a full range of management schemes</p> <p>3 Recognize potential of timber sales to create new forage producing areas</p> <p>4 Provide for logical development of sale areas that can be packaged with existing grazing allotments or for new transitory grazing areas.</p> <p>1 Use only compatible species in range forage improvement projects</p> <p>1 Utilize the National Forest Landscape Management Handbook (USDA No 484) "Range" in the design and application of improvements</p> <p>1. Forest-wide Standards and Guidelines apply. See p IV-89</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-89</p>	<p>1 The management scheme applied will be one which best meets the timber management goal for the specific area. Management seeks utilization of forage allocated to livestock</p> <p>1 Grass seeding will not be done when it interferes with tree regeneration or growth</p> <p>1. Cost effective management systems and techniques including fences and water developments are designed and applied to obtain relatively uniform livestock distribution and use of forage, and to maintain plant vigor.</p>
<u>TIMBER</u>	<p>Regeneration Harvest</p> <p>Intermediate Harvest</p>	<p>1. Harvest generally at culmination of mean annual increment Regeneration practices subject to standards in Regional Guide and NFMA Regulations</p> <p>1. Up to two commercial thinnings may be considered</p> <p>2 Remove dead and dying trees, as economical, from areas not scheduled for regeneration harvest</p>	<p>1 Clearcut</p> <p>2 Shelterwood cut</p> <p>3 Seed tree cut</p> <p>1 Thin to maintain a minimum basal area that will utilize site potential and produce an economical harvest</p> <p>1 Salvage Sales should be considered, where dead or dying trees exceed minimum wildlife needs</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>TIMBER</u> (continued)	<p>Silvicultural Examination and Prescription</p> <p>Reforestation</p> <p>Timber Stand Improvement</p> <p>Timber Sale Preparation and Timber Harvest Administration</p> <p>Nursery Management</p> <p>Genetic Tree Improvement</p>	<p>1. Make examination prior to any activity and as required for certification of reforestation and thinning.</p> <p>1. Use compatible reforestation methods</p> <p>1 Use methods compatible with the goal</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV- 93 and 94</p> <p>1 Collect seed in sufficient quantities to meet program reforestation needs plus a sufficient reserve for natural disasters.</p> <p>1. Implement the Forest Tree Improvement Program Include seed orchards and plantations to evaluate the genetic quality of selected trees</p>	<p>1 Stand examination</p> <p>1 Plant all nonstocked areas following regeneration harvest unless adequate natural regeneration of desired species is expected within three years.</p> <p>2 Perform site preparation as required by site specifications</p> <p>3 Protect seedlings from animal damage where stocking level is threatened.</p> <p>1 Release regeneration overtopped by competing vegetation</p> <p>2 Fertilization will be used where it is cost effective, and on soils where increased growth of conifers can be expected based on past experience or research</p> <p>1 Cone collection</p> <p>2 Seed certification.</p> <p>1 Select and maintain superior trees</p> <p>2 Collect seed from superior trees</p>
<u>WATER</u>	<p>Planning</p> <p>Improvement</p> <p>Administration and Management</p> <p>Rights and Use Management</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-94</p> <p>1. Forest-wide Standards and Guidelines apply See p. IV-94 and 96</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV- 94 and 95</p> <p>1 Forest-wide Standards and Guidelines apply. See p. IV-95 and 96</p>	
<u>SOIL</u>	<p>Planning and Inventory</p> <p>Improvement</p> <p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV-96</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 96</p> <p>1. Forest-wide Standards and Guidelines apply. See p IV-97</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>AIR</u>	<p>Planning</p> <p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-98</p> <p>1. Forest-wide Standards and Guidelines apply. See p IV-98</p>	
<u>MINERALS AND GEOLOGY</u>	<p>Locatable Minerals</p> <p>Leasable Energy Minerals</p> <p>Common Variety Minerals</p> <p>Recreational Mineral Activities</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-98 and 99</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-98 and 99</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 98 and 99</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-99</p>	
<u>RURAL COMMUNITY AND HUMAN RESOURCES</u>		<p>1 Forest-wide Standards and Guidelines apply See p IV- 99 and 100</p>	
<u>LANDS</u>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Property Line Location Property Boundary and Corner Maintenance</p> <p>Landownership Planning Land Adjustment Planning, and All Adjustment Activities</p> <p>Rights-of-Way Cost-Share Agreements</p>	<p>1. Transportation and utility corridors are permitted where suitable</p> <p>1 Grants will be made under then prevailing guidelines</p> <p>1. Recommend only compatible uses</p> <p>1 Property lines adjacent to timber production areas will be surveyed, marked and posted</p> <p>2 These property lines will have high priority in the use of available Land Line Location funds</p> <p>1 Use land exchange to facilitate resource management</p> <p>1 Maximize use of cost share process to reduce miles of road (acres out of production), costs, and assure that location and standard of roads within the National Forest portion of agreement areas are compatible with management goals.</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>FACILITIES</u></p>	<p>Road Construction</p>	<p>1 Provide and manage roads as needed to accomplish resource objectives</p>	<p>1 Purchasers must be compensated for standards in excess of timber sale needs, CFR 223.3 or revision</p> <p>2 Insure that all construction is consistent with long term area access needs</p> <p>3 Provide a mix of limited strength, seasonal and extended haul roads as appropriate</p>
	<p>FA&amp;O Construction and Reconstruction</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-102 and 103</p>	
	<p>Road Operation</p>	<p>1. Appropriate road use will be determined during project level planning</p>	
<p><u>PROTECTION</u></p>	<p>Fire Prevention</p>	<p>1 Implement a high intensity Fire Prevention program as outlined in the Forest's Fire Management Action Plan</p>	
	<p>Fire Suppression</p>	<p>1 Implement Fire Suppression strategies that support the timber management objectives and silvicultural activities being applied under this prescription</p> <p>2 All Fire suppression tactics and fire suppression resources may be appropriate</p>	
	<p>Fire Hazard Abatement</p>	<p>1 Treatment of both activity generated fuels and natural fuels is appropriate when they are coordinated with the timber management practices being implemented</p>	
	<p>Preattack Facilities Development</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-103</p>	
	<p>Law Enforcement</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-103</p>	
	<p>Forest Pest Management</p>	<p>1 Aggressively suppress insects and diseases when outbreaks threaten resource management.</p> <p>2 Utilize high intensity prevention with sound Integrated Pest Management principles</p>	

**MANAGEMENT PRESCRIPTION: MP-1**

**TITLE: Mather Memorial Parkway**

**GOAL STATEMENT:** Manage area to maintain and enhance its outstanding scenic and recreation qualities.

**DESCRIPTION:** This is an area classified by executive order, encompassing a zone extending 1/2 mile either side of U.S. Highway 410, to be managed primarily for scenic and recreational purposes. Developments and management activities within the allocation generally are not visually evident. The natural existing or established landscape will generally have vegetation on forested lands that is composed of large old growth trees in the overstory or in groves intermixed with a variety of age classes in the understory. The general perception of the landscape is a natural appearing environment. Motorized use is permitted within these areas to the extent it is compatible with the management intent.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u></p>	<p>Recreation Planning and Inventory</p>	<p>1 Visual Quality Objective. RETENTION</p> <p>2. Plan recreation activities in conformance with appropriate ROS class: Semi-primitive to Rural.</p>	<p>1. Dispersed sites may be modified to accommodate recreational facilities and uses</p> <p>2 Visual analysis is required to blend activities with the naturally established landscape.</p> <p>3 Structures within the area will be architecturally compatible with the naturally established landscape</p> <p>4 Rehabilitation measures are to be applied to the landscape where needed to improve visual setting</p> <p>5. Prescribed fire may be used to enhance visual quality and to maintain natural fire succession</p>
	<p>Cultural Resource Evaluation, Assessment and Protection</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV- 66</p>	
	<p>Facility and Site Reconstruction and Construction</p>	<p>1. Provide high quality recreation sites and facilities with development of activities and opportunities desired by the recreating public.</p>	
	<p>Facility and Site Management</p>	<p>1. Forest-wide Standards and Guidelines apply. See p. IV- 68</p>	
	<p>Use Administration</p>	<p>1. Forest-wide Standards and Guidelines apply. See p. IV- 68</p>	
	<p>Trail Reconstruction and Construction</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV- 68 and 69</p>	
	<p>Trail System Maintenance and Operation</p>	<p>1 Forest-wide Standards and Guidelines apply. See p. IV-69</p>	

**MP-1**

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>WILDLIFE AND FISH</u>	Wildlife Surveys and Plans  Non-Structural and Structural Habitat Improvement	1 Manage primary cavity excavators at close to 100 percent of the potential population level  1. Forest-wide Standards and Guidelines apply See p IV-83 and 84	
<u>RANGE</u>	Range Planning and Inventory    Range Non-Structural Improvements  Range Structural Improvements  Range Structural Improvement Maintenance  Range Administration and Management	1 Grazing of suitable range by livestock shall emphasize range management practices that are consistent with the scenic quality of the area  2 Management of the range resource under this prescription will feature an extensive (Level C) scheme of management  3 Intensive cultural practices will not be used  1 Use only compatible species in range forage improvement projects  1. Utilize the National Forest Landscape Management Handbook (USDA No 484) "Range" in the design and application of improvements  1. Forest-wide Standards and Guidelines apply See p IV- 89  1 Forest-wide Standards and Guidelines apply See p IV-89	1 Level C Management - Management seeks utilization of forage allocated to livestock consistent with the management goal     1 Cost effective management systems and techniques, including fences and water developments, are designed and applied to obtain relatively uniform livestock distribution and use of forage, and to maintain plant vigor
<u>TIMBER</u>	Regeneration Harvest         Intermediate Harvest	1 No scheduled harvest within seen area (the foreground area visible from Highway 410, trails and developed sites) of the zone Regeneration harvest may take place within the zone outside of the seen area if compatible with the adjacent management prescription Improvement cutting for recreational purposes is permitted Unscheduled harvest may also take place to recover losses due to fire, windthrow, insect or other catastrophies  1 No scheduled harvest within the seen area of the zone Intermediate harvest may take place within the zone outside of the seen area if compatible with the adjacent management prescription. Unscheduled harvest may also take place to recover losses due to fire, windthrow, insects or other catastrophies	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>TIMBER</u> (continued)	<p>Silvicultural Examination and Prescription</p> <p>Reforestation</p> <p>Timber Stand Improvement</p> <p>Timber Sale Preparation and Timber Harvest Administration</p> <p>Nursery Management and Genetic Tree Improvement</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 92</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-92 and 93</p> <p>1. Precommercial thinning may take place if compatible with the adjacent management prescription</p> <p>1. Forest-wide Standards and Guidelines apply See p IV- 93 and 94</p> <p>1 No special practice</p>	
<u>WATER</u>	<p>Planning</p> <p>Improvement</p> <p>Administration and Management</p> <p>Rights and Use Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-94</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-94 and 96</p> <p>1. Forest-wide Standards and Guidelines apply See p IV- 94 and 95</p> <p>1. Forest-wide Standards and Guidelines apply See p IV- 95 and 96</p>	
<u>SOIL</u>	<p>Planning and Inventory</p> <p>Improvement</p> <p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV- 96</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV- 96</p> <p>1. Forest-wide Standards and Guidelines apply. See p IV- 97</p>	
<u>AIR</u>	<p>Planning</p> <p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 98</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV- 98</p>	

**MP-1**

<b>RESOURCE ELEMENT</b>	<b>MANAGEMENT ACTIVITY</b>	<b>STANDARDS AND GUIDELINES</b>	<b>MANAGEMENT PRACTICE</b>
<u><b>MINERALS AND GEOLOGY</b></u>	<p>Locatable Minerals</p> <p>Leasable Energy Minerals</p> <p>Common Variety Minerals</p> <p>Recreational Mineral Activities</p>	<p>1 Continue the existing withdrawal along the highway (330 feet each side of the centerline), unless other existing laws and regulations will provide adequate protection</p> <p>2 Ensure that prior valid existing rights exist before approving any mining related activities within the withdrawn area.</p> <p>1. If leasable mineral related activities are incompatible with the management objectives for the withdrawn area, attach a no surface occupancy stipulation to the lease</p> <p>1. Allow mineral material sites when compatible with the goal</p> <p>1 Consider designating panning areas</p>	
<u><b>RURAL COMMUNITY AND HUMAN RESOURCES</b></u>		<p>1 Forest-wide Standards and Guidelines apply See p IV- 99 and 100</p>	
<u><b>LANDS</b></u>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Property Line Location Property Boundary and Corner Maintenance</p> <p>Landownership Planning, Land Adjustment Planning, and All Adjustment Activities</p> <p>Rights-of-Way Cost-Share Agreements</p>	<p>1 Permit transportation and utility corridors when compatible with the goal</p> <p>1 Provide appropriate access to inholders under then existing guidelines</p> <p>1 Recommend only compatible uses</p> <p>1. Survey, mark and post lines of all other ownerships within the area not planned for acquisition</p> <p>1 Use land exchange to facilitate resource management</p> <p>1. Forest-wide Standards and Guidelines apply See p IV- 101</p>	
<u><b>FACILITIES</b></u>	<p>Road Construction</p> <p>Road Operation</p> <p>FA&amp;O Construction and Reconstruction</p>	<p>1 Provide and manage roads as needed to accomplish resource objectives</p> <p>1 Appropriate road use will be determined by project planning and design</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV- 102 and 103</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>PROTECTION</u>	Fire Prevention	1 Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan	
	Fire Suppression	1. Implement fire suppression strategies that emphasize the protection of recreation facilities and values or other special values of the area.  2 Fire suppression tactics should emphasize the protection of life and property while minimizing the physical disturbance of the resources. The use of all fire suppression resources is appropriate	
	Fire Hazard Abatement	1 Treatment of both activity generated and natural fuels is appropriate when coordinated with the scenic, recreational, or other special management objectives of the area  2 The protection of recreation values will be emphasized during the planning and implementation of these projects	
	Preattack Facilities Development	1 Develop only those preattack facilities that are compatible with the special scenic and recreational values of the areas	
	Law Enforcement	1 Forest-wide Standards and Guidelines apply See p. IV- 103	
	Forest Pest Management	1. Suppress insects and diseases when outbreaks threaten managed resources and/or users  2 Utilize Integrated Pest Management strategies to prevent unacceptable pest damage and meet resource objectives	

**MANAGEMENT PRESCRIPTION: OG-1**

**TITLE: Old-Growth Management**

**GOAL:** Manage for old growth habitat to achieve "ecosystem diversity, preservation of aesthetic qualities", and/or "wildlife and plant habitat".

**DESCRIPTION:** The Regional Guide for the Pacific Northwest Region directs all Forests to use a standard definition of old growth. Following are the descriptions of the characteristics needed to meet the requirements of this prescription.

1. **ECOSYSTEM DIVERSITY:** Ecosystem diversity is a representation of the variety that exists in biotic communities and is characterized by the number of species on a site and by the number of communities at all sites. The variety of management prescriptions will provide many and varied stand conditions and species, helping to maintain ecosystem diversity in managed, younger stands. However, enough of all types of old growth are required to maintain species dependent on old growth and preserve the various kinds of old growth communities found on the Forest.

2. **PRESERVATION OF AESTHETIC QUALITIES** People using the forest for recreation purposes enjoy old growth trees for their aesthetic and awe-inspiring qualities. Old trees represent a living link with the past and provide an important visual reference to the natural successional process of the forest environment.

Old growth stands are typically thought of as having an atmosphere that is peaceful, cathedral-like, and park-like or an atmosphere of being small, closed in, dominated and encompassed. The stand feels cool and refreshing, and smells musty from the decadent vegetation (rotting logs, snags, fruiting bodies of fungus and underbrush). The trees have deep furrowed bark, large diameters at the base of the tree (generally 21" in diameter or larger), tall and straight boles, (over 100 feet tall) rotten cracks, broken limbs, mosses, lichens, and rounded tops that create the illusion of being old.

3. **WILDLIFE AND PLANT HABITAT:** The indicator species for old growth and mature habitat is the spotted owl. Habitat for spotted owls includes mature and overmature trees dominant in the overstory, a multi-layered canopy, trees of several age classes, large amounts of standing dead trees and down material present, canopy crown closure of 45 percent or greater, and elevations between 1500 and 5000 feet.

The 2200 acres (more or less depending upon local circumstances) of suitable habitat may be contiguous, or scattered over a area of about 9000 acres. There is usually unsuitable habitat (either naturally occurring or from harvest) intermingled with the suitable habitat. It is common to find logging activities next to suitable spotted owl habitat. Road use and recreation activities will often be taking place within the habitat site.

*Maintenance and reproduction of spotted owls is of high concern, therefore, limit activities that may affect reproduction.*

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>RECREATION</u>	Recreation Planning and Inventory  Cultural Resource Evaluation, Assessment and Protection	1 Visual Quality Objective Retention  2 Plan recreation activities and facilities that meet applicable ROS class criteria Semi-primitive non-motorized to Roaded natural  1 Forest-wide Standards and Guidelines apply See p IV- 66	1 Rehabilitation measures are to be applied to the landscape where needed to improve the visual setting

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u> (continued)</p>	<p>Facility and Site Reconstruction and Construction</p> <p>Facility and Site Management</p> <p>Use Administration</p> <p>Trail Reconstruction and Construction</p> <p>Trail System Maintenance and Operation</p>	<p>1 New facilities should be designed and managed such that they are consistent with the goals of the prescription</p> <p>1 Manage existing facilities so that they're consistent with the goals of the prescription</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 68</p> <p>1. Construct or reconstruct trails to conform with goals of old growth management and to enhance the recreation experience opportunities presented by old growth habitats</p> <p>2 As opportunities become available, build trails where appropriate, to provide viewing of old growth and old growth dependent species</p> <p>1 Manage recreation use to be compatible with the old growth setting Prohibit non-conforming activities and relocate uses outside this prescription</p>	
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p>	<p>1 For each spotted owl network site, maintain within 2 1 miles of the owl's center of activity (whichever is less) .</p> <ul style="list-style-type: none"> <li>a. 2200 acres of high quality old growth and/or mature habitat,</li> <li>or</li> <li>b all suitable habitat</li> </ul> <p>As suitable habitat becomes available, it will be added to these sites until there is 2200 acres at each site.</p> <p>2 Maintain the distribution of spotted owl habitat in a network that provides for all species dependent upon mature or old growth habitat (mature and old growth network) Distribution of sites in the network will meet the standards and guidelines established in the Supplemental Environmental Impact Statement on spotted owls</p> <p>3 Follow the Regional Monitoring Plan for spotted owls</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>WILDLIFE AND FISH</u> (continued)</p>	<p>Non-Structural Habitat Improvement</p> <p>Structural Habitat Improvement</p>	<p>4 Exact boundaries will be undetermined until site specific project analysis is completed Factors to consider in determining exact location will be</p> <p>a <i>Overlap with resource allocations that do not harvest timber.</i></p> <p>b <i>Provide high quality spotted owl habitat</i></p> <p>c. <i>Maintain habitat for the "mature and old growth network "</i></p> <p>d <i>Provide areas where Ecosystem Diversity, Aesthetic Qualities, and Animal and Plant habitat overlap</i></p> <p>e <i>Provide better management boundaries</i></p> <p>f <i>Maintain suitable habitat after catastrophic events</i></p> <p>5 <i>Maintain ecosystem diversity by having sites large enough to provide for adequate representation of sites.</i></p> <p>6 <i>Manage primary cavity excavators at close to 100 percent of the potential population level</i></p> <p>1 Habitat improvements will be done to</p> <p>a <i>Meet the management requirements for indicator species</i></p> <p>b <i>Improve factors that may be limiting indicator species and dependant species from occupying network sites</i></p> <p>1. Habitat improvements will be done to</p> <p>a <i>Meet the management requirements for indicator species.</i></p> <p>b <i>Improve factors that may be limiting indicator species and dependant species from occupying network sites</i></p>	
<p><u>RANGE</u></p>	<p>Range Planning and Inventory</p> <p>Range Non-Structural and Structural Improvements</p> <p>Range Structural Improvement Maintenance</p> <p>Range Administration and Management</p>	<p>1. <i>Grazing of suitable range by livestock is allowed, but must be compatible with the goal of the prescription</i></p> <p>1 <i>Forest-wide Standards and Guidelines apply</i> See p IV- 89 and 92</p> <p>1 <i>Reconstruct, relocate, or eliminate existing range improvements that visually detract from the old growth definitions</i></p> <p>1 <i>Forest-wide Standards and Guidelines apply</i> See p IV- 89</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>TIMBER</u>	Regeneration Harvest Intermediate Harvest Silvicultural Examination and Prescription Reforestation Timber Stand Improvement Timber Sale Preparation, and Timber Harvest Administration Nursery Management and Genetic Tree Improvement	1 No scheduled timber harvest 1 No scheduled timber harvest 1 Silvicultural prescriptions will be written to enhance old growth conditions 1 Natural regeneration will be the preferred method 1 None planned, any timber stand improvement projects should enhance old growth condition 1 Forest-wide Standards and Guidelines apply See p IV- 93 and 94 1 No special practice.	1 Stand examination
<u>WATER</u>	Planning Improvement Administration and Management Rights and Use Management	1 Forest-wide Standards and Guidelines apply See p IV- 94 1 Forest-wide Standards and Guidelines apply See p IV- 94 and 96 1 The riparian zones will be managed the same as the old growth prescription 1 Design water and hydro developments to be compatible with the goals	
<u>SOIL</u>	Planning and Inventory Improvement Administration and Management	1 Forest-wide Standards and Guidelines apply See p IV- 96 1 Forest-wide Standards and Guidelines apply. See p IV- 96 1 Forest-wide Standards and Guidelines apply See p IV- 97	
<u>AIR</u>	Planning Administration and Management	1 Forest-wide Standards and Guidelines apply See p IV-98 1 Forest-wide Standards and Guidelines apply See p IV-98	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>MINERALS AND GEOLOGY</u></p>	<p>Locatable Minerals</p> <p>Leasable Energy Minerals</p> <p>Common Variety Minerals</p> <p>Recreational Mineral Activities</p>	<p>1. If the proposed activity will adversely impact nesting birds or other dependent species and it is reasonable, recommend during pre-production stages that mineral activities not be conducted during the <i>critical use period</i> (e.g. nesting/fledging period of spotted owls -- February 15 to August 15)</p> <p>1 Recommend that a stipulation be attached to leases which provides for the same reasonable restrictions as required for <i>Locatable Minerals above</i></p> <p>1 Do not allow disposal of common variety minerals if removal will significantly and irreversibly impact old growth dependent species habitat, and alternative sources of these minerals are available</p> <p>2 Attach a stipulation to the permit which provides the same protection as is required under <i>Locatable Minerals</i></p> <p>1 Forest-wide Standards and Guidelines apply See p IV-99</p>	
<p><u>RURAL COMMUNITY AND HUMAN RESOURCES</u></p>	<p>Not applicable to this prescription</p>		
<p><u>LANDS</u></p>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Property Line Location Property Boundary and Corner Maintenance</p> <p>Landownership Planning, Land Adjustment Planning, and All Adjustment Activities</p> <p>Rights-of-Way Cost-Share Agreements</p>	<p>1. Avoid locating transportation and utility corridors in these areas</p> <p>1 Grant access only where no other options exist</p> <p>1 Recommend only compatible uses</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-100</p> <p>1 National Forest ownership is most desirable</p> <p>1 Maximize use of the cost share program in control of road locations, numbers, standards, etc where these areas coincide with cost share areas</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>FACILITIES</u></p>	Road Construction	<p>1. No roads will be built if a reasonable alternative exists</p>	
	Road Operation	<p>1 Appropriate road use will be determined by project planning and design</p>	
	FA&O Construction and Reconstruction	<p>1 To the extent practical, locate structures outside this prescription</p>	
<p><u>PROTECTION</u></p>	Fire Prevention	<p>1 Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan</p>	
	Fire Suppression	<p>1 Implement fire suppression strategies commensurate with the habitat management objectives</p> <p>2 All fire suppression tactics and resources may be appropriate</p>	
	Fire Hazard Abatement	<p>1 Treatment of both activity generated and natural fuels is appropriate when coordinated with the habitat management objectives of the specific area</p>	
	Preattack Facilities Development	<p>1 Develop preattack facilities in coordination with the habitat management objectives of each specific area</p>	
	Law Enforcement	<p>1 Forest-wide Standards and Guidelines apply See p IV- 103</p>	
	Forest Pest Management	<p>1. Suppress insect and disease outbreaks to ensure protection of old-growth trees and other resources. Insects and disease are important components of old growth</p>	
		<p>2 Survey insects and diseases common to old growth that may threaten immediate and adjacent areas</p>	

**MANAGEMENT PRESCRIPTION: OG-2**

**TITLE: Mature Habitat**

**GOAL STATEMENT:** Manage for mature to old growth habitat for wildlife and plant species dependent upon this habitat.

**DESCRIPTION:** The indicator species for this prescription are the marten/northern three-toed woodpecker and pileated woodpecker. These indicators plus the spotted owl are designed to provide a mature and old growth network. The network is to provide habitat for all species dependent upon mature or old growth habitat. The habitat for the marten/northern three-toed woodpecker and pileated woodpecker is described as mature or overmature trees in the overstory, a three-layered canopy of trees in several age classes, large amounts of dead standing and down trees present, and a canopy closure of 95 percent or greater. Habitat for marten/northern three-toed woodpeckers is at elevations of about 2000 to 7000 feet, and for the pileated woodpecker, about 1500 to 5000 feet in elevation.

The marten/northern three-toed woodpecker habitat is a 160 acre contiguous habitat. One site will be found every 4000 to 5000 acres and it will be overlapped with spotted owl and pileated woodpecker sites when possible. An additional 160 acres of habitat is needed for developing future marten/northern three-toed woodpecker habitat. This additional acreage may be in any successional stages. The location of the 160 acres of mature habitat will change through time in the 320 acre site.

The pileated woodpecker habitat is 300 acres, made of stands of no less than 50 acres within a 1000 acre area. One site will be found every 12,000 acres and these sites should be overlapped with spotted owls when possible. An additional 300 acres of habitat is needed for pileated woodpecker sites that may be in any successional stage but must have a high number of snags to provide food. The location of the 300 acres of mature habitat will change through time in the 600 acre site.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<b>RECREATION</b>	Recreation Planning and Inventory	1. Visual Quality Objective Partial Retention  2 Recreation Opportunity Spectrum Class Criteria Semi-primitive non-motorized to roaded natural.	
	Cultural Resource Evaluation, Assessment and Protection	1 Forest-wide Standards and Guidelines apply See p IV- 66	
	Facility and Site Reconstruction and Construction	1. New and reconstructed facilities should be consistent with the goals of the prescription	
	Facility and Site Management	1. Forest-wide Standards and Guidelines apply See p IV- 68	
	Use Administration	1 Forest-wide Standards and Guidelines apply See p IV- 68	
	Trail Reconstruction and Construction	1 As opportunities become available, build trails to provide viewing of indicator species and mature habitat	
	Trail System Maintenance and Operation	1 Forest-wide Standards and Guidelines apply See p IV- 69	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p>	<p>1 Maintain 160 acres of contiguous suitable mature or old growth habitat for marten and 300 acres of mature or old growth habitat for pileated woodpeckers at all times</p> <p>2 Maintain the distribution of habitat in a network that provides for all species dependent upon mature or old growth habitat (mature and old growth network) Follow Region 6 Management Requirement Guidelines for wildlife</p> <p>3 Pileated woodpecker areas will have a minimum of 60 percent potential population of primary cavity excavator habitat on the entire area The mature habitat component (160 acres for pine marten and 300 acres for pileated woodpecker) will strive to maintain 100 percent potential population of primary cavity excavators.</p> <p>4 Exact boundaries will be undetermined until site specific project analysis is completed Factors to consider in determining exact locations will be.</p> <p>a. Overlap with resource allocations that do not harvest timber                      b Provide mature or old growth habitat                      c Maintain habitat for the "mature and old growth network "                      d. Provide better management boundaries                      e Maintain suitable habitat after catastrophic events</p> <p>5 Part of the habitat in these stands will have decay, insects, and disease apparent</p>	
	<p>Non-Structural Habitat Improvement</p>	<p>1 Habitat improvements will be done to                      a Meet the management requirements for indicator species                      b Improve factors that may be limiting indicator species and dependent species from occupying network sites</p>	
	<p>Structural Habitat Improvement</p>	<p>1 Habitat improvements will be done to                      a Meet the management requirements for indicator species                      b Improve factors that may be limiting indicator species and dependent species from occupying network sites</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RANGE</u></p>	<p>Range Planning and Inventory</p> <p>Range Non-Structural and Structural Improvements</p> <p>Range Structural Improvement Maintenance</p> <p>Range Administration and Management</p>	<p>1 When areas occur within allotments, management will be at the same intensity as adjacent lands and compatible with the goal</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 89 and 92</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 89</p> <p>1 Forest-wide Standards and Guidelines apply. See p. IV- 89</p>	
<p><u>TIMBER</u></p>	<p>Regeneration Harvest</p> <p>Silvicultural Examination and Prescriptions</p> <p>Reforestation</p>	<p>1 Harvest will be to perpetuate the mature habitat characteristics and reduce the risk of loss of sites from natural events Habitat conditions will be achieved at about 120 years and be maintained until the stand is about 180 years old Final harvest is planned at about 180 years of age</p> <p>1. Leave primarily thrifty dominant trees when possible to maintain <i>timber production</i>, but some mistletoe infected and/or defective trees should be maintained to provide wildlife habitat</p> <p>2. Thin to maintain growth so that site productivity is utilized and to produce an economical harvest</p> <p>1. Use an appropriate mix of naturally occurring trees Regeneration will be by planting and natural seeding following harvest</p> <p>2 Perform site preparation as required by site specifications</p> <p>3 Protect plantations against animal damage</p> <p>4 Use reforestation methods, nursery stock, and stocking levels that help achieve the goals of the prescription</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>TIMBER</u> (continued)	Timber Stand Improvement  Timber Sale Preparation, and Timber Harvest Administration  Nursery Management and Genetic Tree Improvement	1 Manage stands to achieve large trees quickly.  1 Schedule activities to minimize harassment of wildlife  2 Make examination prior to any activity and as required for certification of reforestation and thinning  1 Use genetically superior tree stock when needed to achieve the goals of the prescription.	
<u>WATER</u>	Planning  Improvement  Administration and Management  Rights and Use Management	1. Forest-wide Standards and Guidelines apply See p IV- 94  1. Forest-wide Standards and Guidelines apply See p IV-94 and 96  1 The riparian zones in this management prescription will be managed to provide mature habitat as well as meet the goals for the Riparian-Aquatic Habitat Protection Zone  1. Forest-wide Standards and Guidelines apply See p IV- 95 and 96	
<u>SOIL</u>	Planning and Inventory  Improvement  Administration and Management	1 Forest-wide Standards and Guidelines apply. See p IV-96  1. Forest-wide Standards and Guidelines apply See p IV- 96  1. Forest-wide Standards and Guidelines apply. See p IV- 97	
<u>AIR</u>	Planning  Administration and Management	1 Forest-wide Standards and Guidelines apply See p IV-98  1. Forest-wide Standards and Guidelines apply See p IV- 98	
<u>MINERALS AND GEOLOGY</u>	Locatable Minerals	1 If the proposed activity will adversely impact nesting birds or other dependent species and it is reasonable, recommend mineral activities during pre-production stages not be conducted during the critical use period. Ensure all habitat-disturbing activities are essential for conducting the proposed mineral related activity	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>MINERALS AND GEOLOGY</u> (continued)</p>	<p>Leasable Minerals</p> <p>Common Variety Minerals</p> <p>Recreational Mineral Activities</p>	<p>1 Recommend that a stipulation be attached to leases which provides for the same reasonable restrictions as required for Locatable Minerals above</p> <p>1 Do not allow disposal of common variety minerals if removal will significantly and irreversibly impact old growth dependent species habitat, and alternative sources of these minerals are available</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 99</p>	
<p><u>RURAL COMMUNITY AND HUMAN RESOURCES</u></p>	<p>Not applicable to this prescription</p>		
<p><u>LANDS</u></p>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Property Line Location Property Boundary and Corner Maintenance</p> <p>Landownership Planning, Land Adjustment Planning, and All Adjustment Activities</p> <p>Rights-of-Way Cost-Share Agreements</p>	<p>1 Avoid locating buildings and utility corridors in mature habitat areas</p> <p>1 Grant access only where no other options exist</p> <p>1. Recommend only compatible uses</p> <p>1. Forest-wide Standards and Guidelines apply See p IV- 100</p> <p>1 National Forest ownership is most desirable</p> <p>1 Maximize use of the cost share program in control of road locations, numbers, standards, etc. where these areas coincide with cost share areas.</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>FACILITIES</u></p>	Road Construction	<p>1 Provide and manage roads as needed to accomplish resource objectives</p>	
	Road Operation	<p>1 Appropriate road use will be determined by project planning and design</p>	
	FA&O Construction and Reconstruction	<p>1 Forest-wide Standards and Guidelines apply See p IV-102 and 103</p>	
<p><u>PROTECTION</u></p>	Fire Prevention	<p>1 Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan</p>	
	Fire Suppression	<p>1 Implement fire suppression strategies commensurate with the habitat management objectives</p> <p>2 All fire suppression tactics and resources may be appropriate</p>	
	Fire Hazard Abatement	<p>1 Treatment of both activity generated and natural fuels is appropriate when coordinated with the habitat management objectives of the specific area</p>	
	Preattack Facilities Development	<p>1 Develop preattack facilities in coordination with the habitat management objectives of each specific area</p>	
	Law Enforcement	<p>1 Forest-wide Standards and Guidelines apply See p IV-103</p>	
	Forest Pest Management	<p>1 Suppress insect and disease outbreaks to insure protection of old-growth timber and other resources</p> <p>2 Utilize Integrated Pest Management strategies to prevent unacceptable pest damages and meet resource objectives</p> <p>3 Survey insects and diseases common to old-growth that may threaten immediate and adjacent areas</p>	

**MANAGEMENT PRESCRIPTION: RE-1**

**TITLE: Developed Recreation**

**GOAL STATEMENT:** Provide developed recreation in an Urban to Semi-Primitive Recreation Opportunity Spectrum (ROS) setting.

**DESCRIPTION:** This prescription is applicable to existing and potential developed recreation sites within the full spectrum of ROS settings. The areas allocated to this use include only the specific site on which development takes place. This prescription is also applicable to existing and potential Alpine (downhill) ski areas including runs, tows or lift facilities, shelters, lodges, services and parking lots. Associated developments such as skating rinks, toboggan runs, etc., may also be present. Potential sites allocated to this prescription will be managed to protect or enhance the future values and conditions desired.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><b>RECREATION</b></p>	<p>Recreation Planning and Inventory</p>	<p>1 Visual Quality Objective Retention</p> <p>2 Plan recreation activities and facilities to provide a diverse range of recreation opportunities in ROS classes, semi-primitive to urban</p> <p>3 Develop partnerships and encourage recreation development through permits, joint ventures, and cooperative agreements</p> <p>4 Encourage development of recreation opportunities by the private providers</p> <p>5 Employ marketing strategies to determine wants and needs of recreation visitors Incorporate these wishes in recreation planning and development</p>	<p>1 A visual analysis is required to blend activities with the naturally established landscape</p> <p>2 Vegetative management plans are required prior to manipulation of vegetation</p> <p>3 Consistent with safety, retain the vegetative character of the area</p> <p>4 Manmade structures are to be architecturally compatible with the established landscape</p> <p>5 Sites may be modified to accommodate recreational facilities and uses</p> <p>6 Buildings should present naturally harmonious colors</p> <p>7 Trails will be located to take advantage of viewing opportunities</p> <p>8 Rehabilitation measures are to be applied to landscape where needed to improve the visual setting</p>
	<p>Cultural Resource Evaluation, Assessment and Protection</p>	<p>1 Forest-wide Standards and Guidelines apply See p. IV-66</p>	
	<p>Facility and Site Reconstruction and Construction</p>	<p>1 Provide high quality recreation sites and facilities with development of activities and opportunities desired by the recreating public</p> <p>2 Reconstruct all moderate to heavily used sites with high quality facilities</p> <p>3 Construct new recreation sites where demand is high and overuse problems are occurring at existing sites</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u> (continued)</p>	<p>Facility and Site Management</p> <p>Use Administration</p> <p>Trail Reconstruction and Construction</p> <p>Trail System Maintenance and Operation</p>	<p>1 Manage all recreation sites to provide high quality facilities and recreation opportunities</p> <p>2 Charge user fees in all facilities that can meet fee site requirements</p> <p>3 Provide interpretive facilities and programs in high use developed sites and where opportunities for public education are optimal</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-68</p> <p>1. Forest-wide Standards and Guidelines apply See p IV- 68 and 69</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 69</p>	
<p><u>WILDERNESS</u></p>	<p>Not Applicable to this Prescription</p>		
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p> <p>Non-Structural and Structural Habitat Improvement</p>	<p>1 Due to the hazard that wildlife trees present to recreation users, manage for maintenance of wildlife trees only if safety of recreation users can be maintained</p> <p>1. Forest-wide Standards and Guidelines apply See p. IV-83 and 84</p>	
<p><u>RANGE</u></p>	<p>Not Applicable to this Prescription</p>		
<p><u>TIMBER</u></p>	<p>Regeneration Harvest</p> <p>Intermediate Harvest</p>	<p>1 No scheduled harvest Regeneration harvest may be needed to convert areas from thin bark or shallow rooted species to those more tolerant to disturbance, recreation use, and disease, or to perpetuate a desired forest type</p> <p>1 No scheduled harvest Improvement cutting and salvage harvesting compatible with the prescription goal may be used Improvement cutting will be in accordance with the vegetative management plan for the site</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>TIMBER</u> (continued)	<p>Silvicultural Examination and Prescription</p> <p>Reforestation</p> <p>Timber Stand Improvement</p> <p>Timber Sale Preparation, and Timber Harvest Administration</p> <p>Nursery Management and Genetic Tree Improvement</p>	<p>1 Silvicultural examination and prescription will be the biological basis for the vegetation management plan.</p> <p>1. All activities will be in accordance with the vegetative management plan</p> <p>1 All activities will be in accordance with the vegetative management plan</p> <p>1 All activities will be compatible with area objectives.</p> <p>1 No special practice.</p>	
<u>WATER</u>	<p>Inventory</p> <p>Planning</p> <p>Improvement</p> <p>Administration and Management</p> <p>Rights and Use Management</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV- 94</p> <p>1 Existing and/or proposed trail construction, maintenance, and use shall be designed to protect water resources</p> <p>1. Forest-wide Standards and Guidelines apply. See p IV- 94 and 96</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 94 and 95</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV- 95 and 96</p>	
<u>SOIL</u>	<p>Inventory</p> <p>Planning</p> <p>Improvement</p> <p>Administration and Management</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV- 96</p> <p>1 Conduct an on-site soil investigation on all recreation sites being considered for development</p> <p>2 Existing and/or proposed trail construction, maintenance, and use shall be designed to protect soil resources</p> <p>3 Use soil information when locating and designing trails</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-96</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 97</p>	

RE-1

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>AIR</u>	<p>Planning</p> <p>Administration and Management</p>	<p>1 Forest-wide Standards and guidelines apply See p IV-98</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-98</p>	
<u>MINERALS AND GEOLOGY</u>	<p>Locatable Minerals</p> <p>Leasable Energy Minerals</p> <p>Common Variety Minerals</p> <p>Recreational Mineral Activities</p>	<p>1 If existing laws and regulations do not provide adequate protection for the facilities and activities from mineral entry and the effects of mining, and recreation development is the highest and best use for the area, the area should be proposed for withdrawal</p> <p>1 If off-site mineral development is technically reasonable and is compatible with the recreation development objectives, recommend that a no-surface occupancy stipulation be attached to leases. If off-site development is not technically reasonable and on-site activity would be totally incompatible with the recreation development, recommend that a mineral lease not be issued</p> <p>1 If removal of these minerals can be done in a manner which is compatible with the developed recreation facility, allow disposal</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-99</p>	
<u>RURAL COMMUNITY AND HUMAN RESOURCES</u>	<p>Not Applicable to this Prescription</p>		
<u>LANDS</u>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Withdrawals, Modifications, and Revocations</p>	<p>1 Avoid locating transportation and utility corridors in these areas</p> <p>1 Provide appropriate access to inholders under then existing guidelines</p> <p>1 Recommend only compatible uses</p> <p>1 Use withdrawals only where necessary to protect on-site values</p>	



RE-1

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>PROTECTION</u> (continued)</p>	<p>Fire Hazard Abatement</p>	<p>1 Treatment of both activity generated and natural fuels is appropriate when coordinated with the recreation management objectives of the area</p> <p>2 The protection of recreation values will be emphasized</p>	
	<p>Preattack Facilities Development</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-103</p>	
	<p>Law Enforcement</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV- 103</p>	
	<p>Forest Pest Management</p>	<p>1 Suppress insect and disease outbreaks with a minimum of resource disturbance to protect developments and/or users Favor biological and silvicultural treatments over pesticides when possible.</p> <p>2 Utilize high intensity preventive efforts featuring Integrated Pest Management</p>	

**MANAGEMENT PRESCRIPTION: RE-2**

**TITLE: Dispersed Recreation, Unroaded, Motorized**

**GOAL STATEMENT:** Provide dispersed, unroaded recreation in a semi-primitive motorized recreation opportunity setting.

**DESCRIPTION:** This prescription is for application to unroaded areas in which trails are evident and maintained for the following types of uses.

**RE-2a - Areas having existing or potential trails for motorbikes, hikers and horseback riders.**

**RE-2b - Areas having existing or potential 4x4 routes in addition to trails for motorbikes, hikers and horseback riders.**

They are generally located in a natural appearing landscape setting. Winter motorized use is permitted where appropriate.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u></p>	<p>Recreation Planning and Inventory</p>	<p>1 Visual Quality Objective RETENTION</p> <p>2 Plan recreation activities to conform to the ROS class criteria Semi-primitive motorized</p>	<p>1 A visual analysis is required to blend activities with the naturally established landscape</p> <p>2 Trails and routes will be located to take advantage of viewing opportunities and provide a variety of vegetative compositions, landscape character and viewing sequences</p> <p>3 Rehabilitation measures are to be applied to the landscape where needed to improve the visual setting</p>
	<p>Cultural Resource Evaluation, Assessment and Protection</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 66</p>	
	<p>Facility and Site Reconstruction and Construction</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 67 and 68</p>	
	<p>Facility and Site Management</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV- 68</p>	
	<p>Use Administration</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 68</p>	
	<p>Trail Reconstruction and Construction</p>	<p>1 Trails will be located or relocated to minimize substantial impacts to resource values also dependent upon semi-primitive conditions or settings</p>	
	<p>Trail System Maintenance and Operation</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 69</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p> <p>Non-Structural and Structural Habitat Improvement</p>	<p>1 Minimize or prevent wildlife harassment in calving, fawning and selected nesting areas</p> <p>2 Manage primary cavity excavators at 100 percent of the potential population level</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV- 83 and 84</p>	
<p><u>RANGE</u></p>	<p>Range Planning and Inventory</p> <p>Range Non-Structural Improvements</p> <p>Range Structural Improvements</p> <p>Range Structural Improvement Maintenance</p> <p>Range Administration and Management</p>	<p>1 Grazing of suitable range by livestock shall emphasize range management practices that favor unroaded, motorized, dispersed recreation</p> <p>2 Management of the range resource under this prescription will feature a Level C scheme of management There will be no increased range use</p> <p>1 Use only compatible species in range forage improvement projects</p> <p>2 Control noxious weeds as practical</p> <p>1. Utilize the National Forest Landscape Management Handbook (USDA No 484) "Range" in the design and application of improvements</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-89</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 89</p>	<p>1 Level C Management - Management seeks full utilization of forage allocated to livestock.</p> <p>1 Cost effective management systems and techniques including fences and water developments are designed and applied to obtain relatively uniform livestock distribution and use of forage, and to maintain plant vigor.</p>
<p><u>TIMBER</u></p>	<p>Regeneration Harvest</p> <p>Intermediate Harvest</p> <p>Silvicultural Examination and Prescription</p> <p>Reforestation</p> <p>Timber Stand Improvement</p>	<p>1 No scheduled harvest Salvage harvesting related to catastrophic occurrences is permitted</p> <p>1 No scheduled harvest Salvage harvesting related to catastrophic occurrences is permitted</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-92</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-92 and 93</p> <p>1 No precommercial thinning</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>TIMBER</u> (continued)</p>	<p>Timber Sale Preparation, and Timber Harvest Administration</p> <p>Nursery Management and Genetic Tree Improvement</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 93 and 94</p> <p>1 No special practice</p>	
<p><u>WATER</u></p>	<p>Planning</p> <p>Improvement</p> <p>Administration and Management</p> <p>Rights and Use Management</p>	<p>1 Existing and/or proposed trail construction, maintenance and use shall be designed to protect water resources</p> <p>2. Forest-wide Standards and Guidelines apply. See p IV- 94</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV- 94 and 96</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 94 and 95</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-95 and 96</p>	
<p><u>SOIL</u></p>	<p>Planning and Inventory</p> <p>Improvement</p> <p>Administration and Management</p>	<p>1 Existing and/or proposed trail construction, maintenance and use shall be designed to protect soil resources.</p> <p>2 Use soil information when locating and designing trails</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV- 96</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 97</p>	
<p><u>AIR</u></p>	<p>Planning</p> <p>Administration and Management</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-98</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 98</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>MINERALS AND GEOLOGY</u></p>	<p>Locatable Minerals</p> <p>Leasable Energy Minerals</p> <p>Common Variety Minerals</p> <p>Recreational Mineral Activities</p>	<p>1 If reasonable, limit access for pre-production prospecting and exploration activities to existing 4X4 routes or trails</p> <p>2 If roading is reasonably necessary and incidental to proposed mineral prospecting, exploration and development activities, approve the activity using Forest-wide Standards and Guidelines</p> <p>1 Attach a stipulation to the lease which provides for the same restrictions as required for Locatable Minerals above</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 98 and 99</p> <p>1 Access for conducting these activities shall be in keeping with the management goals for the area</p>	
<p><u>RURAL COMMUNITY AND HUMAN RESOURCES</u></p>		<p>1 Forest-wide Standards and Guidelines apply See p IV- 99 and 100</p>	
<p><u>LANDS</u></p>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Withdrawals, Modifications, and Revocations</p> <p>Property Line Location Property Boundary and Corner Maintenance</p> <p>Landownership Planning, Land Adjustment Planning, and All Adjustment Activities</p> <p>Rights-of-Way Cost-Share Agreements</p>	<p>1 Avoid locating transportation and utility corridors in these areas</p> <p>1 Provide appropriate access to inholders under then existing guidelines</p> <p>1. Permits and licenses will be issued under prevailing guidelines</p> <p>1 Withdrawals from mineral entry are not appropriate in these areas</p> <p>1 Survey, mark and post all National Forest property lines within these areas where private lands are not scheduled for acquisition</p> <p>1. National Forest status is most desirable</p> <p>1 Limit participation to cooperating in determining the most appropriate means, location and standard for cooperator access to their lands Do not share in the cost of development</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>FACILITIES</u>	<p>Road Construction</p> <p>Road Operation</p> <p>FA&amp;O Construction and Reconstruction</p>	<p>1 No roads will be constructed or maintained except that</p> <p>a 4x4 routes are permitted for dispersed recreation in RE-2B</p> <p>b. Reasonable access will be granted to landlocked inholders under then prevailing guidelines</p> <p>c Short-term roads may be constructed if compatible with the recreation objective</p> <p>1 Prohibit or eliminate road use except encourage 4x4 use on specified routes.</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 102 and 103</p>	
<u>PROTECTION</u>	<p>Fire Prevention</p> <p>Fire Suppression</p> <p>Fire Hazard Abatement</p> <p>Preattack Facilities Development</p> <p>Law Enforcement</p> <p>Forest Pest Management</p>	<p>1 Implement a moderate intensity fire prevention program as outlined in the Forest's Fire Management Action Plan</p> <p>1 Implement fire suppression strategies that emphasize the protection of recreation facilities and values</p> <p>2 Fire suppression tactics should emphasize the protection of life and property The use of all fire suppression resources is appropriate</p> <p>1 Treatment of both activity generated and natural fuels is appropriate when coordinated with the recreation management objectives of the area</p> <p>2 The protection of recreation values will be emphasized</p> <p>1. Develop only those preattack facilities that are compatible with the unroaded nature and management objectives of the area</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 103</p> <p>1 Suppress insects and diseases when outbreaks threaten managed resources and/or users</p> <p>2 Utilize Integrated Pest Management strategies to prevent unacceptable pest damage and meet resource objectives</p>	

**MANAGEMENT PRESCRIPTION: RE-3**

**TITLE: Dispersed Recreation, Unroaded, Non-Motorized**

**GOAL STATEMENT.** Provide dispersed recreation in an unroaded, semi-primitive, non-motorized or primitive setting.

**DESCRIPTION:** This prescription is for application to unroaded areas in which trails are evident and maintained for non-motorized users. Landscape changes are generally not evident to those walking through the area. The area is essentially a natural or natural appearing environment. There is little evidence on-site of other users.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u></p>	<p>Recreation Planning and Inventory</p>	<p>1 Visual Quality Objective RETENTION</p> <p>2 Plan recreation opportunities and activities to conform to ROS classes, primitive and semi-primitive non-motorized</p>	<p>1 A visual analysis is required to blend activities with the naturally established landscape</p> <p>2 Trails will be located to take advantage of opportunities to view scenery or special features present in the landscape</p>
	<p>Cultural Resource Evaluation, Assessment and Protection</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 66</p>	
	<p>Facility and Site Reconstruction and Construction</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 67 and 68</p>	
	<p>Facility and Site Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 68</p>	
	<p>Use Administration</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV- 68</p>	
	<p>Trail Reconstruction and Construction</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-68 and 69</p>	
	<p>Trail System Maintenance and Operation</p>	<p>1. Forest-wide Standards and Guidelines apply. See p IV- 69</p>	
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p>	<p>1. Forest-wide Standards and Guidelines apply See p. IV- 80 through 83</p> <p>2 Manage primary cavity excavators near 100 percent of the potential population level.</p>	
	<p>Non-Structural Habitat Improvement</p>	<p>1. Habitat improvements will be done for management of wildlife species when not conflicting with the goals of the prescription</p>	
	<p>Structural Habitat Improvement</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 83 and 84</p>	



RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>SOIL</u>	<p>Planning and Inventory</p> <p>Improvement</p> <p>Administration and Management</p>	<p>1. Existing and/or proposed trail construction, maintenance and use shall be designed to protect soil resources.</p> <p>2 Use soil information when locating and designing trails</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 96</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 97</p>	
<u>AIR</u>	<p>Planning</p> <p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply. See p. IV- 98</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 98</p>	
<u>MINERALS AND GEOLOGY</u>	<p>Locatable Minerals</p> <p>Leasable Energy Minerals</p> <p>Common Variety Minerals</p> <p>Recreational Mineral Activities</p>	<p>1 If roading and the use of motorized equipment is reasonably necessary for and incidental to mineral prospecting, exploration and development activities, approve the activity using Forest-wide Standards and Guidelines</p> <p>2 If reasonable, limit access for pre-production prospecting and exploration activities to those methods that are most compatible with the objectives established for these areas (i.e., if helicopter access or packing are economically and technically reasonable, recommend they be used).</p> <p>1 Recommend that a stipulation be attached to the lease which provides for the same restrictions as required for Locatable Minerals above</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 98 and 99</p> <p>1 Access, the use of motorized equipment, and the effects associated with conducting these activities will be limited to those that are in keeping the goals established for the area</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RURAL COMMUNITY AND HUMAN RESOURCES</u></p>		<p>1. Forest-wide Standards and Guidelines apply. See p IV- 99 and 100</p>	
<p><u>LANDS</u></p>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Withdrawals, Modifications, and Revocations</p> <p>Property Line Location Property Boundary and Corner Maintenance</p> <p>Landownership Planning, Land Adjustment Planning, and All Adjustment Activities</p> <p>Rights-of-Way Cost-Share Agreements</p>	<p>1. Avoid locating transportation and utility corridors in these areas</p> <p>1 Provide appropriate access to inholders under then existing guidelines</p> <p>1. Recommend only compatible use</p> <p>1 Withdrawals from mineral entry are not appropriate in these areas</p> <p>1. Survey, mark and post all National Forest property lines within these areas where private lands are not scheduled for acquisition</p> <p>1 Retain National Forest lands Consolidate on a high priority basis</p> <p>1 Limit participation to cooperating in determining the most appropriate means, location and standard for cooperator access to their lands Do not share cost</p>	
<p><u>FACILITIES</u></p>	<p>Road Construction</p> <p>Road Operation</p> <p>FA&amp;O Construction and Reconstruction</p>	<p>1 No roads will be constructed or maintained except that a Reasonable access will be granted to inholders under then prevailing guidelines</p> <p>1 Prohibit or eliminate road use</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 102 and 103</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>PROTECTION</u>	Fire Prevention	1 Implement a moderate intensity fire prevention program as outlined in the Forest's Fire Management Action Plan	
	Fire Suppression	<p>1. Implement fire suppression strategies that emphasize the protection of recreation facilities and values or other special values of each management area</p> <p>2. Fire suppression tactics should emphasize the protection of life and property while minimizing the physical disturbance of the resources. The use of all fire suppression resources is appropriate</p>	
	Fire Hazard Abatement	<p>1. Treatment of both activity generated and natural fuels is appropriate when coordinated with the scenic, recreation, or other special management objectives of the area.</p> <p>2 The protection of recreation values will be emphasized during the planning and implementation of these projects</p>	
	Preattack Facilities Development	1. Develop only those preattack facilities that are compatible with the special visual and recreational values of the areas	
	Law Enforcement	1 Forest-wide Standards and Guidelines apply See p IV- 103	
	Forest Pest Management	<p>1 Suppress insects and diseases when outbreaks threaten managed resources and/or users where possible</p> <p>2 Utilize Integrated Pest Management strategies to prevent unacceptable pest damage and meet resource objectives.</p>	

**MANAGEMENT PRESCRIPTION: RE-4**

**TITLE: Dispersed Recreation/Unroaded/Timber Harvest**

**GOAL STATEMENT:** Provide for dispersed recreation, as well as long-term growth and production of commercially valuable wood products at a very low level of investment in timber cultural practices while maintaining the unroaded characteristics.

**DESCRIPTION:** Approximately 90 percent of future stands would come from natural regeneration. The remaining 10 percent would be regenerated by planting, after failure of natural regeneration to establish the stand. No stand improvements are planned between regeneration and harvest, future stands will closely resemble unmanaged conditions and will be typified by a tendency towards small irregularly spaced groups. Stands will generally have poor crown ratios and a wide range of age and height. Mortality due to tree competition, disease, and insects can be expected. Logging will generally be by aerial system to protect the unroaded characteristics of the area. Roads will not be constructed, except to protect adjacent resources.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<b>RECREATION</b>	<i>Recreation Planning and Inventory</i>	<p>1. <i>Visual Quality Objective, Modification</i></p> <p>2 Plan recreation and timber harvest activities to meet appropriate ROS class Semi-primitive motorized</p>	<p>1. <i>A visual analysis is required to blend activities with the naturally established landscape</i></p> <p>2 Trails and routes will be located to take advantage of viewing opportunities and provide a variety of vegetative compositions, landscape character and viewing sequences</p> <p>3 Rehabilitation measures are to be applied to the landscape where needed to improve the visual setting</p> <p>4 Meet retention or partial retention from trails and viewpoints within the allocation, as appropriate</p>
	<i>Cultural Resource Evaluation, Assessment and Protection</i>	1 Forest-wide Standards and Guidelines apply See p IV-66	
	<i>Facility and Site Reconstruction and Construction</i>	1. Forest-wide Standards and Guidelines apply See p. IV-67 and 68	
	<i>Facility and Site Management</i>	1 Forest-wide Standards and Guidelines apply See p IV- 68	
	<i>Use Administration</i>	1 Forest-wide Standards and Guidelines apply See p IV-68	
	<i>Trail Reconstruction and Construction</i>	1 Forest-wide Standards and Guidelines apply. See p IV-68 and 69	
	<i>Trail System Maintenance and Operation</i>	1 Forest-wide Standards and Guidelines apply See p IV-69	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p> <p>Non-Structural and Structural Habitat Improvement</p>	<p>1 Manage primary cavity excavators at 60 percent of the potential population level</p> <p>1. Forest-wide Standards and Guidelines apply See p IV- 83 and 84</p>	
<p><u>RANGE</u></p>	<p>Range Planning and Inventory</p> <p>Range Non-Structural Improvements</p> <p>Range Structural Improvements</p> <p>Range Structural Improvement Maintenance</p> <p>Range Administration and Management</p>	<p>1 Grazing of suitable range by livestock shall emphasize range management practices that favor unroaded, motorized, dispersed recreation</p> <p>2 Management of the range resource under this prescription will feature a Level C scheme of management</p> <p>1 Use only compatible species in range forage improvement projects</p> <p>2 Control noxious weeds as practical</p> <p>1 Utilize the National Forest Landscape Management Handbook (USDA No 484) "Range" in the design and application of improvements</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 89</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 89</p>	<p>1 Level C Management - Management seeks utilization of forage allocated to livestock</p> <p>1 Cost effective management systems techniques including fences and water developments are designed and applied Obtain relatively uniform livestock distribution and use of forage, and to maintain plant vigor</p>
<p><u>TIMBER</u></p>	<p>Regeneration Harvest</p> <p>Intermediate Harvest</p> <p>Silvicultural Examination and Prescription</p>	<p>1 Regeneration practice subject to standards in Regional Guide and NFMA Regulations Natural regeneration will be the preferred method</p> <p>1 No commercial thinnings</p> <p>2 Remove dead and dying trees if economical, from areas not scheduled for commercial harvest</p> <p>1 Make examination prior to any activity and as required for certification of reforestation and thinning</p>	<p>The following are the regeneration harvest priorities</p> <ol style="list-style-type: none"> <li>1 Extended Shelterwood</li> <li>2 Shelterwood cut</li> <li>3 Seed tree cut</li> <li>4 Clearcut</li> </ol> <p>1 Salvage Sales</p> <p>1 Stand examination</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>TIMBER</u> (continued)	<p>Reforestation</p> <p>Timber Stand Improvement</p> <p>Timber Sale Preparation and Timber Harvest Administration</p> <p>Nursery Management</p> <p>Genetic Tree Improvement</p>	<p>1. Planting will be delayed until the site has had three years for natural regeneration</p> <p>1 No precommercial thinning anticipated</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV- 93 and 99</p> <p>1 Collect seed in sufficient quantities to meet program reforestation needs plus a sufficient reserve for natural disasters</p> <p>1. Implement the Forest Tree Improvement Program</p>	<p>1 Plant nonstocked areas following regeneration harvest as necessary to meet Regional minimum stocking level standards within ten years Regeneration remainder of area naturally Use genetically superior stock as available. Interplant where needed</p> <p>2 Site preparation to encourage natural seeding will replace planting on most sites</p> <p>1 Cone collection.</p> <p>2 Seed certification.</p> <p>1 Select and maintain superior trees</p> <p>2 Collect seed from superior trees</p>
<u>WATER</u>	<p>Planning</p> <p>Improvement</p> <p>Administration and Management</p> <p>Rights and Use Management</p>	<p>1 Existing and/or proposed management activities maintenance and use shall be designed to protect soil and water resources</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-94 and 96</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 94 and 95</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-95 and 96</p>	
<u>SOIL</u>	<p>Planning</p> <p>Improvement</p> <p>Administration and Management</p>	<p>1. Existing and/or proposed management activities maintenance and use shall be designed to protect soil and water resources.</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV-96</p> <p>1 Forest-wide Standards and Guidelines apply See p IV- 97</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICES
<u>AIR</u>	<p>Planning</p> <p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p. IV-98</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-98</p>	
<u>MINERALS AND GEOLOGY</u>	<p>Locatable Minerals</p> <p>Leasable Energy Minerals</p> <p>Common Variety Minerals</p> <p>Recreational Mineral Activities</p>	<p>1 If reasonable, limit access for pre-production prospecting and exploration activities to existing 4X4 routes or trails.</p> <p>2. If roading is reasonably necessary and incidental to proposed mineral prospecting, exploration and development activities, approve the activity using Forest-wide Standards and Guidelines</p> <p>1 Attach a stipulation to the lease which provides for the same restrictions as required for Locatable Minerals above</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-98 and 99</p> <p>1 Access for conducting these activities shall be in keeping with the management goals for the area</p>	
<u>RURAL COMMUNITY AND HUMAN RESOURCES</u>		<p>1. Forest-wide Standards and Guidelines apply See p. IV- 99 and 100</p>	
<u>LANDS</u>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Withdrawals, Modifications, and Revocations</p> <p>Property Line Location Property Boundary and Corner Maintenance</p>	<p>1. Avoid locating transportation and utility corridors in these areas</p> <p>1 Provide appropriate access to inholders under then existing guidelines</p> <p>1 Permits and licenses may be issued when consistent with the goals of this prescription</p> <p>1 Withdrawals from mineral entry are not appropriate in these areas</p> <p>1 Property lines adjacent to timber production areas will be surveyed, marked and posted</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>LANDS</u> (continued)	Landownership Planning, Land Adjustment Planning, and All Adjustment Activities  Rights-of-Way Cost-Share Agreements	1 National Forest status is desirable, but not mandatory  1 Limit participation to cooperating in determining the most appropriate means, location and standard for cooperator access to their lands	
<u>FACILITIES</u>	Road Construction    Road Operation	1. No roads will be constructed or maintained except that. a. Reasonable access will be granted to land-locked inholders under then prevailing guidelines b. Short-term roads may be constructed to protect adjacent resources  1 Prohibit or eliminate road use.	
<u>PROTECTION</u>	Fire Prevention  Fire Suppression  Fire Hazard Abatement  Preattack Facilities Development  Law Enforcement  Forest Pest Management	1 Implement a moderate intensity fire prevention program as outlined in the Forest's Fire Management Action Plan  1 Implement fire suppression strategies that emphasize the protection of recreation facilities and values  2. Fire suppression tactics should emphasize the protection of life and property. The use of all fire suppression resources is appropriate  1. Treatment of both activity generated and natural fuels is appropriate when coordinated with the recreation management objectives of the area  2. The protection of recreation values will be emphasized  1 Develop only those preattack facilities that are compatible with the unroaded nature and management objectives of the area  1 Forest-wide Standards and Guidelines apply See p IV-103  1 Suppress insects and diseases when outbreaks threaten managed resources and/or users  2 Utilize Integrated Pest Management strategies to prevent unacceptable pest damage and meet resource objectives	

**MANAGEMENT PRESCRIPTION: RM-1**

**TITLE: Intensive Range Management**

**GOAL STATEMENT:** Provide for maximum forage production and utilization by commercial livestock with a high level of investment in range cultural practices

**DESCRIPTION:** Management seeks to optimize production and utilization of forage allocated for livestock use consistent with maintaining the environment and providing for multiple use of the range. Cultural practices such as brush control or seeding may be combined with fencing and water developments to implement complex grazing systems.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u></p>	<p>Recreation Planning and Inventory</p>	<p>1 Visual Quality Objective Modification</p> <p>2 Plan recreation activities to conform to the appropriate ROS class criteria Roaded natural to Rural</p> <p>3 Plan and design recreation facilities in coordination with the development of range facilities and livestock management</p>	<p>1 A visual analysis is required to blend activities with the naturally established landscape</p> <p>2 Revegetate all disturbed areas to the extent compatible with the applicable visual quality objective</p> <p>3 Rehabilitation measures are to be applied to landscape where needed to meet the Visual Quality Objective where compatible with the range goal</p>
	<p>Cultural Resource Evaluation, Assessment and Protection</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-66</p>	
	<p>Facility and Site Reconstruction and Construction</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-67 and 68</p>	
	<p>Facility and Site Management</p>	<p>1 Forest-wide and Standards and Guidelines apply See p IV-68</p>	
	<p>Use Administration</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV-68</p>	
	<p>Trail Reconstruction and Construction</p>	<p>1 Construct or reconstruct trails to a standard which allows for trailing of livestock when desirable and identified in the Allotment Management Plan</p>	
	<p>Trail System Maintenance and Operation</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-69</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p>	<p>1 Manage primary cavity excavators at 20 percent of potential population level</p>	
	<p>Non-Structural Habitat Improvement</p>	<p>1 Maintain minimum forage and cover needs for big game diversity, especially adjacent to winter range</p> <p>2. Maintain existing hardwood components at a level compatible with the goal of this prescription</p>	
	<p>Structural Habitat Improvement</p>	<p>1 Forest-wide Standards and Guidelines apply See p. IV-83 and 84</p>	
<p><u>RANGE</u></p>	<p>Range Planning and Inventory</p>	<p>1 Grazing of suitable range by livestock shall emphasize range management practices that favor livestock forage production</p> <p>2 Management of the range resource under this prescription will feature an intensive (Level D) management scheme</p> <p>3. Design range management system that will provide for reforestation needs</p>	<p>1. Level D Management - Management seeks to optimize production and utilization of forage allocated for livestock use consistent with maintaining the environment and providing for multiple use of the range</p> <p>2 Recognize potential of timber sales to create new forage producing areas</p> <p>3. Design silvicultural prescriptions to meet range objectives</p> <p>4 Utilize prescribed fire where appropriate to enhance forage production, palatability, and access</p>
	<p>Range Non-Structural Improvements</p>	<p>1 Use forage species and practices which will maximize or favor forage production for livestock</p>	<p>1. Where necessary, seed clearcuts to desirable forage to produce an average of 1000 pounds of forage (air dry) at the end of the first decade Forage levels will be noncompetitive with tree stocking</p> <p>2 Cultural practices such as brush control or seeding may be combined with fencing and water developments to implement complex grazing systems. Type conversions will not be practiced</p>
	<p>Range Structural Improvements</p>	<p>1 Utilize the National Forest Landscape Management Handbook (USDA No. 484) "Range" in the design and application of improvements</p>	<p>1 Cost effective management systems and techniques including fences and water developments are designed and applied to obtain relatively uniform livestock distribution and use of forage and to maintain plant vigor.</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RANGE</u> (continued)</p>	<p>Range Structural Improvement Maintenance</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-89</p>	
	<p>Range Administration and Management</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-89</p>	
<p><u>TIMBER</u></p>	<p>Regeneration Harvest</p>	<p>1. Harvest generally at culmination of mean annual increment Regeneration practice subject to standards in Regional Guide and NFMA Regulations.</p>	<p>1 Thin to maintain a minimum basal area that will utilize site potential to produce wood and forage</p> <p>1. Salvage Sales</p> <p>1 Stand examination.</p> <p>1 Regenerate by planting and natural means, a sufficient number of trees to achieve regional stocking levels. Use genetically superior stock as available</p> <p>2 Perform site preparation as required by site specifications.</p> <p>3 Coordinate the planting schedule with the rotation schedule to provide maximum protection</p> <p>1 Release regeneration overtopped by competing vegetation</p> <p>2 Fertilization will be used where it is cost effective Benefits will consider both increased wood and forage production</p> <p>1 Cone collection</p> <p>2 Seed certification</p> <p>1 Select and maintain superior trees 2 Collect seed from superior trees</p>
	<p>Intermediate Harvest</p>	<p>1 Will generally use commercial thinnings</p> <p>2. Remove dead and dying trees as economical from areas not scheduled for commercial harvest</p>	
	<p>Silvicultural Examination and Prescription</p>	<p>1 Make examination prior to any activity and as required for certification of reforestation and thinning</p>	
	<p>Reforestation</p>	<p>1. Use compatible reforestation methods</p>	
	<p>Timber Stand Improvement</p>	<p>1 Use methods compatible with the goal</p>	
	<p>Timber Sale Preparation and Timber Harvest Administration</p>	<p>1. Coordinate harvest activities with range rotation schedules</p> <p>2 Avoid natural openings when decking logs and piling activity fuels.</p>	
	<p>Nursery Management</p>	<p>1 Collect seed in sufficient quantities to meet program reforestation needs plus a sufficient reserve for natural disasters</p>	
	<p>Genetic Tree Improvement</p>	<p>1 Implement the Forest Tree Improvement Program</p>	

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RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>WATER</u>	Planning  Improvement  Administration and Management  Rights and Use Management	1 Forest-wide Standards and Guidelines apply See p IV-94  1 Forest-wide Standards and Guidelines apply See p IV-94 and 96  1. Forest-wide Standards and Guidelines apply See p IV-94 and 95  1 Forest-wide Standards and Guidelines apply. See p IV- 95 and 96	
<u>SOIL</u>	Planning and Inventory  Improvement  Administration and Management	1 Forest-wide Standards and Guidelines apply See p. IV-96  1 Forest-wide Standards and Guidelines apply See p. IV-96  1 Forest-wide Standards and Guidelines apply See p IV-97	
<u>AIR</u>	Planning  Administration and Management	1 Forest-wide Standards and Guidelines apply. See p IV-98  1 Forest-wide Standards and Guidelines apply See p IV-98	
<u>MINERALS AND GEOLOGY</u>	Locatable Minerals  Leasable Energy Minerals  Common Variety Minerals  Recreational Mineral Activities	1 Forest-wide Standards and Guidelines apply See p IV-98 and 99  1 Forest-wide Standards and Guidelines apply See p IV-98 and 99  1 Forest-wide Standards and Guidelines apply See p IV-98 and 99  1 Forest-wide Standards and Guidelines apply See p IV-99	
<u>RURAL COMMUNITY AND HUMAN RESOURCES</u>		1 Forest-wide Standards and Guidelines apply See p IV-99 and 100	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>LANDS</u>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Property Line Location Property Boundary and Corner Maintenance</p> <p>Landownership Planning, Land Adjustment Planning, and All Adjustment Activities</p> <p>Rights-of-Way Cost-Share Agreements</p>	<p>1 Transportation and utility corridors are permitted where suitable</p> <p>1 Provide appropriate access to inholders under then existing guidelines</p> <p>1 Recommend only compatible uses</p> <p>1 Property lines will be surveyed, marked and posted consistent with improvement construction</p> <p>2 These property lines will have high priority in the use of available Land Line Location funds.</p> <p>1 National Forest status is desirable to facilitate range development and administration</p> <p>1 Maximize use of the cost share process to reduce miles of road (acres out of production), costs, and assure that location and standard of roads within the National Forest portion of agreement areas are compatible with management goals</p>	
<u>FACILITIES</u>	<p>Road Construction</p> <p>Road Operation</p> <p>FA&amp;O Construction and Reconstruction</p>	<p>1 Provide and manage roads as needed to accomplish resource objectives.</p> <p>1 Appropriate road use will be determined by project planning and design.</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-102 and 103</p>	<p>1 Provide gates, fences, and cattleguards as appropriate</p>
<u>PROTECTION</u>	<p>Fire Prevention</p> <p>Fire Suppression</p>	<p>1 Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan</p> <p>1. Implement fire suppression strategies that support the Range Management objectives and practices being applied under this prescription</p> <p>2 All fire suppression tactics and fire suppression resources may be appropriate Protection of all range improvements should be a priority</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>PROTECTION</u> (continued)</p>	<p>Fire Hazard Abatement</p>	<p>1 Treatment of both activity generated and natural fuels is appropriate when coordinated with the Range Management practices being implemented</p>	
	<p>Preattack Facilities Development</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-103</p>	
	<p>Law Enforcement</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-103</p>	
	<p>Forest Pest Management</p>	<p>1. Suppress insect and diseases when adversely affecting vegetation essential for maintaining livestock and/or when unacceptable damage to resources would occur if no controls are applied</p> <p>2 Utilize Integrated Pest Management strategies to prevent unacceptable pest damage and meet resource objectives</p>	

**MANAGEMENT | DESCRIPTION: RN-1**

**TITLE: Research Natural Areas**

**GOAL STATEMENT:** Provide for; (1) Preservation of examples of all significant natural Ecosystems for comparison with those influenced by man, (2) educational research areas for ecological and environmental studies, and (3) preservation of gene pools for typical and rare and endangered plants and animals.

**DESCRIPTION.** Research Natural Areas (RNA) contain either examples of typical natural ecosystems or unique kinds of vegetation, animals, and land which are reserved for scientific and educational use. This use is restricted to non-manipulative and non-destructive research. On the Wenatchee National Forest there are two established RNAs: **Meeks Table** and **Thompson Clover**. Two additional areas have been studied and are candidates for addition to the system. They are: **Fish Lake**, a marsh-bog community, and **Eldorado Creek**, a montane serpentine community. Several new areas on the Forest are candidates as Research Natural areas to meet regional cell (ecosystem) needs. A Research Natural Area establishment report will be prepared for each recommended area when the Forest Plan is implemented. These reports will describe the boundaries of the areas. Until the reports are signed by the Chief of the Forest Service, the areas designated in this Plan are recommendations. They will be managed to maintain their suitability as RNAs.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>RECREATION</u>	Recreation Planning and Inventory  Cultural Resource Evaluation, Assessment and Protection  Facility and Site Reconstruction and Construction  Facility and Site Management  Use Administration  Trail Reconstruction and Construction  Trail System Maintenance and Operation	1. Visual Quality Objective PRESERVATION  2 Do not plan or develop new recreation site or facilities in this prescription  1 Forest-wide Standards and Guidelines apply See p. IV-66  1 Forest-wide Standards and Guidelines apply. See p. IV-67 and 68  1 Forest-wide Standards and Guidelines apply. See p. IV-68  1 Do not encourage recreation use and prohibit use if it is damaging to the intent of the area  1 Construct or reconstruct trails only if needed for research purposes  1 Trail standards will be the minimum needed for essential research access	
<u>WILDLIFE AND FISH</u>	Wildlife Surveys and Plans  Non-Structural and Structural Habitat Improvement	1 Forest-wide Standards and Guidelines apply See p. IV-80 through 83  1 Forest-wide Standards and Guidelines apply See p. IV-83 and 84	

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RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>RANGE</u>	Range Structural Improvements  Range Structural Improvement Maintenance	1 Fence as needed to exclude livestock  1 Forest-wide Standards and Guidelines apply See p IV-89	
<u>TIMBER</u>	Not Applicable to this Prescription		
<u>WATER</u>	Planning  Improvement  Administration and Management  Rights and Use Management	1 Forest-wide Standards and Guidelines apply See p IV-94  1 Forest-wide Standards and Guidelines apply See p IV-94 and 96  1. Forest-wide Standards and Guidelines apply See p IV-94 and 95  1 Forest-wide Standards and Guidelines apply See p IV-95 and 96	
<u>SOIL</u>	Planning and Inventory  Improvement  Administration and Management	1 Forest-wide Standards and Guidelines apply See p IV-96  1 Forest-wide Standards and Guidelines apply See p IV-96  1. Forest-wide Standards and Guidelines apply See p IV-97	
<u>AIR</u>	Planning  Administration and Management	1 Forest-wide Standards and Guidelines apply See p IV-98  1 Forest-wide Standards and Guidelines apply See p IV-98	
<u>MINERALS AND GEOLOGY</u>	Locatable Minerals	1 Propose that the area be withdrawn from entry under the 1872 Mining Law using the Forest-wide Standards and Guidelines for withdrawals  2 After the area is withdrawn, determine if valid prior-existing rights to explore for or mine locatable minerals exist before approving such activities under Forest-wide Standards and Guidelines	



RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>FACILITIES</u></p>	<p>Road Construction</p>	<p>1. No roads will be constructed or maintained except that a reasonable access will be granted to landlocked inholders under the then prevailing guidelines</p>	
	<p>Road Operations</p>	<p>1 Prohibit or eliminate road use</p>	
<p><u>PROTECTION</u></p>	<p>Fire Prevention</p>	<p>1 Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan</p>	
	<p>Fire Suppression</p>	<p>1. Management of natural fires will be addressed in the Establishment Report for each specific Research Natural Area. All wildfires will be suppressed utilizing an appropriate suppression strategy. Suppression tactics which minimize physical disturbance will be used</p> <p>2 All human caused fires will be considered wildfires</p>	
	<p>Fire Hazard Abatement</p>	<p>1 Naturally occurring fires burning within prescription will be managed in an attempt to replicate the natural fire cycle if it is appropriate to the management objectives of the Research Natural Area</p> <p>2 Prescribed burning may be used to maintain ecologic conditions (Ref FSM 4063.41-4)</p>	
	<p>Preattack Facilities Development</p>	<p>1. The development of preattack facilities is not appropriate except on the exterior boundaries of the area where such facilities would supplement the protection of the adjacent lands</p>	
	<p>Law Enforcement</p>	<p>1 Use special closures when necessary to protect the RNA from actual or potential damage from public use when appropriate</p>	
	<p>Forest Pest Management</p>	<p>1 Suppress insect and disease outbreaks to meet RNA objectives</p> <p>2 Use these areas to observe insects and diseases in undisturbed areas</p> <p>3 Survey pest populations as a management strategy for adjacent resource areas</p>	

**MANAGEMENT PRESCRIPTION: SI-1**

**TITLE: Classified Special Areas - Scenic and/or Recreation**

**GOAL STATEMENT:** Manage Special Areas for recreation use, substantially in their natural conditions.

**DESCRIPTION:** These areas are classified under 36 CFR 294.1 and managed for recreation use substantially in their natural condition. The purpose of classifying these areas is to protect the natural beauty and, where appropriate, foster public use and enjoyment of the feature or environment (scenic areas possess outstanding or unique natural beauty). They occupy large areas of land where some multiple use activities may be compatible. Motorized use is permitted within these areas to the extent it is compatible with the management intent. Developments such as resorts, parking areas, campgrounds, etc., are located outside of the Special Area whenever possible

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u></p>	<p>Recreation Planning and Inventory</p>	<p>1 Visual Quality Objective RETENTION</p> <p>2. Plan recreation activities in conformance with appropriate ROS class Primitive to Roaded natural</p>	<p>1 Dispersed sites may be modified to accommodate recreational facilities and uses.</p> <p>2 Visual analysis is required to blend activities with the naturally established landscape.</p> <p>3 Structures within the area will be architecturally compatible with the naturally established landscape.</p> <p>4. Rehabilitation measures are to be applied to the landscape where needed to improve visual setting</p> <p>5 Prescribed fire may be used to enhance visual quality and to maintain natural fire succession</p>
	<p>Cultural Resource Evaluation, Assessment and Protection</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV-66</p>	
	<p>Facility and Site Reconstruction and Construction</p>	<p>1. Construct new facilities outside this prescription when viable alternatives exist</p>	
	<p>Facility and Site Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p. IV-68</p>	
	<p>Use Administration</p>	<p>1 Forest-wide Standards and Guidelines apply. See p. IV-68</p>	
	<p>Trail Reconstruction and Construction</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-68 and 69</p>	
	<p>Trail System Maintenance and Operation</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-69</p>	

SI-1

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p> <p>Non-Structural and Structural Habitat Improvement</p>	<p>1 Manage primary cavity excavators at 100 percent of the potential population level</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-83 and 84</p>	
<p><u>RANGE</u></p>	<p>Range Planning and Inventory</p> <p>Range Non-Structural Improvements</p> <p>Range Structural Improvements</p> <p>Range Structural Improvement Maintenance</p> <p>Range Administration and Management</p>	<p>1. Grazing of suitable range by livestock shall emphasize range management practices that favor classified special interest areas</p> <p>2 Management of the range resource under this prescription will feature an extensive (Level C) scheme of management</p> <p>3 intensive cultural practices will not be used</p> <p>1 Use only compatible species in range forage improvement projects</p> <p>1. Utilize the National Forest Landscape Management Handbook (USDA No 484) "Range" in the design and application of improvements</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-89</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-89</p>	<p>1. Level C Management - Management seeks utilization of forage allocated to livestock</p> <p>1 Cost effective management systems and techniques, including fences and water developments, are designed and applied to obtain relatively uniform livestock distribution and use of forage, and to maintain plant vigor.</p>
<p><u>TIMBER</u></p>	<p>Regeneration Harvest</p> <p>Intermediate Harvest</p> <p>Silvicultural Examination and Prescription</p> <p>Reforestation</p> <p>Timber Stand Improvement</p>	<p>1 No scheduled harvest Improvement cutting for recreational purposes is allowed. Unscheduled harvest may also take place to recover losses due to fire, windthrow, insects or other catastrophies.</p> <p>1 Unscheduled harvest may take place to recover losses due to fire, windthrow, insects, or other catastrophies</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-92</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV-92 and 93</p> <p>1. No precommercial thinnings</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>TIMBER</u> (continued)	Timber Sale Preparation and Timber Harvest Administration  Nursery Management and Genetic Tree Improvement	1 Forest-wide Standards and Guidelines apply. See p IV-93 and 94  1 No special practice	
<u>WATER</u>	Planning  Improvement  Administration and Management  Rights and Use Management	1 Forest-wide Standards and Guidelines apply. See p IV-94  1 Forest-wide Standards and Guidelines apply See p. IV-94 and 96  1. Forest-wide Standards and Guidelines apply See p. IV-94 and 95  1 Forest-wide Standards and Guidelines apply See p IV-95 and 96	
<u>SOIL</u>	Planning and Inventory  Improvement  Administration and Management	1 Forest-wide Standards and Guidelines apply See p IV-96  1. Forest-wide Standards and Guidelines apply See p IV-96  1 Forest-wide Standards and Guidelines apply See p IV-97	
<u>AIR</u>	Planning  Administration and Management	1. Forest-wide Standards and Guidelines apply See p IV-98  1. Forest-wide Standards and Guidelines apply See p IV-98	
<u>MINERALS AND GEOLOGY</u>	Locatable Minerals	1 Determine where existing laws and regulations will not adequately protect areas classified Scenic Special Interest Areas, and propose that those areas be withdrawn from entry under the 1872 mining law  2 After an area has been withdrawn, ensure that prior valid existing rights exist before approving any mining related activities within the area	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>MINERALS AND GEOLOGY</u> (continued)	Leasable Energy Minerals   Common Variety Minerals   Recreational Mineral Activities	1 If leasable mineral related activities are incompatible with the management objectives for the area, and it is reasonable to do so, attach a no surface occupancy stipulation to the lease  2 If no surface occupancy is unreasonable, then propose the area be withdrawn  1 Where feasible, locate all mineral material sites out of these areas  1 Forest-wide Standards and Guidelines apply See p. IV-99	
<u>RURAL COMMUNITY AND HUMAN RESOURCES</u>		1 Forest-wide Standards and Guidelines apply See p. IV-99 and 100	
<u>LANDS</u>	Special Use Management  Right-of-Way Grants for Roads and Trails  Federal Energy Regulatory Commission License and Permits  Property Line Location Property Boundary and Corner Maintenance  Landownership Planning, Land Adjustment Planning, and All Adjustment Activities  Rights-of-Way Cost-Share Agreements	1. Avoid locating transportation and utility corridors in these areas  1 Provide appropriate access to inholders under then existing guidelines  1 Recommend against these uses  1 Survey, mark and post lines of all other ownerships within the area not planned for acquisition  1 Retain existing National Forest land, and acquire lands in other ownerships within these areas to protect and promote public resource values  1 Forest-wide Standards and Guidelines apply See p IV-101	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>FACILITIES</u>	Road Construction	1. Provide and manage roads as needed to accomplish resource objectives.	
	Road Operation	1 Appropriate road use will be determined by project planning and design	
	FA&O Construction and Reconstruction	1 Forest-wide Standards and Guidelines apply See p IV-102 and 103	
<u>PROTECTION</u>	Fire Prevention	1. Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan	
	Fire Suppression	1 Implement fire suppression strategies that emphasize the protection of recreation facilities and values or other special values of each management area  2 Fire suppression tactics should emphasize the protection of life and property while minimizing the physical disturbance of the resources The use of all fire suppression resources is appropriate	
	Fire Hazard Abatement	1. Treatment of both activity generated and natural fuels is appropriate when coordinated with the scenic, recreational, or other special management objectives of the area  2 The protection of recreation and scenic values will be emphasized during the planning and implementation of these projects	
	Preattack Facilities Development	1 Develop only those preattack facilities that are compatible with the special visual and recreational values of the areas	
	Law Enforcement	1 Forest-wide Standards and Guidelines apply See p IV-103	
	Forest Pest Management	1 Suppress insects and diseases when outbreaks threaten managed resources and/or users	



RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u> (continued)</p>	<p>Facility and Site Construction</p>	<p>1 Construction of new facilities should be limited to those which directly benefit and provide for appropriate public use of the feature or environment to which this prescription is directed</p>	<p>1 Design should be unobtrusive as possible and assure preservation of character-defining features of the site For historic sites, maintain the historic relationship between buildings, landscape features and open space</p>
	<p>Facility and Site Management</p>	<p>1. Provide maintenance to protect and preserve the values defined by this prescription</p>	<p>Minimize disturbance of the terrain. Design criteria should be developed that meet the sensitive values of this goal</p>
	<p>Use Administration</p>	<p>1 Manage recreation visitor use to prevent loss, damage, or displacement of resource values Prohibit uses in direct conflict with the goal of this prescription</p>	<p>1. Maintenance work should be in keeping with the Secretary of Interior's standards for rehabilitation of historic structures</p>
		<p>2. New permits for Recreational Special Use sites should be issued for compatible uses only Terminate or conform noncompatible uses on an opportunity basis</p>	<p>1 Pertinent protection clauses should be included in all special use permits to ensure preservation of the values to which this goal is directed</p>
	<p>Trail Reconstruction</p>	<p>1 Design and reconstruction should avoid specific features and characteristics of the environment to which the prescription is directed, and should correct existing conflicts between public use and the special features to be protected</p>	
	<p>Trail Construction</p>	<p>1 Provide access to those areas designated appropriate for public enhancement under this prescription Avoid construction where conflicts with the values of this prescription are unavoidable</p>	
	<p>Trail System Maintenance and Operation</p>	<p>1 Emphasize maintenance of those trails which provide appropriate public access to and use of the features defined by this prescription Consider closures where conflicts cannot be resolved.</p>	
<p><u>WILDERNESS</u></p>	<p>Wilderness Use Administration</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-70 through 78</p>	
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p>	<p>1. Manage primary cavity excavators at 100 percent of the potential population level where snags do not pose threats to historical structures, features, facilities, or visitors</p>	
	<p>Non-Structural Habitat Improvement</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-83 and 84</p>	
	<p>Structural Habitat Improvement</p>	<p>1 Develop structural improvements only where compatible with the values of this prescription (i.e. to protect special botanical or zoological areas)</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>RANGE</u>	Not Applicable to this Prescription		
<u>TIMBER</u>	<p><i>Regeneration Harvest</i></p> <p><i>Intermediate Harvest</i></p> <p>Silvicultural Examination and Prescription</p> <p>Reforestation</p> <p><i>Timber Stand Improvement</i></p> <p>Timber Sale Preparation and Timber Harvest Administration</p> <p>Nursery Management and Genetic Tree Improvement</p>	<p>1 No scheduled harvest. With the exception of the Tumwater Botanical Area, improvement cutting and salvage are allowed when compatible with, or to enhance the goal of this prescription. Unscheduled harvest may also take place to recover losses due to fire windthrow, insects or other catastrophes, where compatible with the prescription.</p> <p>1 Unscheduled harvest may take place to recover losses due to fire, windthrow, insects, or other catastrophes where compatible with the prescription.</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV-92</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-92 and 93</p> <p>1 No precommercial thinning</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-93 and 94</p> <p>1 No special practice.</p>	
<u>WATER</u>	<p>Planning</p> <p>Improvement</p> <p>Administration and Management</p> <p>Rights and Use Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-94</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-94 and 96</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-94 and 95</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-95 and 96</p>	
<u>SOIL</u>	<p>Planning and Inventory</p> <p>Improvement</p> <p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-96</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-96</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV-97</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>AIR</u>	<p>Planning</p> <p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply. See p. IV-98</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-98</p>	
<u>MINERALS AND GEOLOGY</u>	<p>Locatable Minerals</p> <p>Leasable Energy Minerals</p> <p>Common Variety Minerals</p> <p>Recreational Mineral Activities</p>	<p>1 If cultural resources are encountered and it is determined that they are not presently owned or being used for mining or other purposes, assert public ownership by appropriately signing as Government Property</p> <p>2 Where legally permissible and logistically reasonable, remove unattached cultural resources to a visitor center for appropriate protection and interpretation</p> <p>1 Where existing laws and regulations do not adequately protect the area from entry and mining under the 1872 Mining Law, propose the area be withdrawn</p> <p>2 After the area has been withdrawn, confirm valid existing rights exist before approving any locatable mineral related activities</p> <p>1 If necessary to protect the resource and technically reasonable, recommend a no surface occupancy stipulation be attached to leases If the no-surface occupancy stipulation is unreasonable and significant unmitigatable impacts would occur from leasable mineral activity, recommend the area not be leased</p> <p>1 Do not permit the development of mineral material sites within these areas</p> <p>1 Allow only those uses that are compatible with the management objectives established for each individual site</p>	
<u>RURAL COMMUNITY AND HUMAN RESOURCES</u>		<p>1 Forest-wide Standards and Guidelines apply See p IV-99 and 100</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>LANDS</u>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Withdrawals, Modifications, and Revocations</p> <p>Property Line Location Property Boundary and Corner Maintenance</p> <p>Landownership Planning, Land Adjustment Planning, and All Adjustment Activities</p> <p>Rights-of-Way Cost-Share Agreements</p>	<p>1. Avoid locating transportation and utility corridors in these areas</p> <p>1. Provide appropriate access to inholders under then existing guidelines</p> <p>1 Recommend against these uses</p> <p>1 Consider withdrawal where mining activities may be detrimental to the resource and harmful effects cannot be avoided.</p> <p>1 Survey, mark, and post lines of all other ownerships within area not planned for acquisition</p> <p>1 Retain existing National Forest ownership, and acquire private inholdings within these areas to protect and promote public resource values</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-101</p>	<p>1 Consider impact to special values of the site and develop appropriate mitigation alternatives for that portion of the rights-of-way that is subject to Federal grant or cost sharing</p> <p>1 Make mineral classification investigation to support withdrawal.</p>
<u>FACILITIES</u>	<p>Road Construction</p> <p>Road Operation</p> <p>FA&amp;O Construction and Reconstruction</p>	<p>1 Provide and manage roads as needed to accomplish resource objectives</p> <p>1 Encourage, accept, discourage, eliminate or prohibit road use as determined by project planning</p> <p>1. Maintenance and construction should be in keeping with the Secretary of Interior's standards for the rehabilitation of historic structures</p>	
<u>PROTECTION</u>	<p>Fire Prevention</p> <p>Fire Suppression</p>	<p>1. Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan.</p> <p>1. Implement fire suppression strategies that emphasize the protection of recreation facilities or other special values of each management area</p> <p>2 Fire suppression tactics should emphasize the protection of life and property while minimizing the physical disturbance of the resources The use of all fire suppression resources is appropriate</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>PROTECTION</u> (continued)</p>	<p>Fire Hazard Abatement</p>	<p>1 Treatment of both activity generated and natural fuels is appropriate when coordinated with the scenic, recreational, or other special values being emphasized in these management areas</p> <p>2. The protection of recreation values will be emphasized during the planning and implementation of these projects</p>	<p>1. Determine the occurrence and frequency of vandalism and theft at these areas, with corresponding investigations of any violations observed</p>
	<p>Preattack Facilities Development</p>	<p>1 Develop only those preattack facilities that are compatible with the special visual and recreational values of the areas</p>	
	<p>Law Enforcement</p>	<p>1 Provide law enforcement action as a means of protecting the special characteristics of the area</p>	
	<p>Forest Pest Management</p>	<p>1 Suppress insects and diseases when outbreaks threaten managed resources and/or users.</p> <p>2 Utilize Integrated Pest Management strategies to prevent unacceptable pest damage and meet resource objectives.</p>	

**MANAGEMENT PRESCRIPTION: ST-1**

**TITLE: Scenic Travel - Retention**

**GOAL STATEMENT:** To retain or enhance the viewing and recreation experiences along scenic travel routes.

**DESCRIPTION:** Development and permitted uses will meet the "Retention" Visual Quality Objective in foreground and middleground areas viewed from developed recreation sites and designated roads and trails. Developments and management activities within the allocation generally are not visually evident. The natural existing or established landscape will generally have vegetation on forested lands that is composed of large old growth trees in the overstory or in groves intermixed with a variety of age classes in the understory. The general perception of the landscape is a natural appearing environment.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u></p>	<p>Recreation Planning and Inventory</p>	<p>1 Visual Quality Objective RETENTION</p>	<p>1 Landscape architectural input is recommended when planning an activity or constructing improvements</p> <p>2 Provide a diversity of vegetative species and age classes</p> <p>3 Where consistent with existing or predicted insect and disease conditions, strive to grow or maintain large (24-36" diameter) mature ponderosa pine, larch, and mixed conifer trees to an age of about 260 years. The number of trees left should retain form, line, color, and texture which are frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, arrangement, and pattern should not be evident</p> <p>4 Regeneration cutting is generally by the extended shelterwood treatment. The design and viewing angle of created openings is more important than size. However, the seen area of openings will normally be three acres or less in foreground, and five acres or less in middleground</p> <p>5 Changes in form, line, color and texture resulting from management activities such as skid trails, landings, and prescribed burning should not be evident for more than one season</p> <p>6 New cutting units are designed to give the viewer the perception that not more than three percent of the foreground area in the viewshed (travel corridor) has been disturbed within any one decade</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u> (continued)</p>	<p>Recreation Planning and Inventory (continued)</p>	<p>1 Visual Quality Objective <b>RETENTION</b> (continued)</p> <p>2 Attempt to preserve indefinitely a few small patches of old growth timber for viewing by travelers Strive to retain a few scattered old growth or "character" trees throughout the corridor to add to visual variety</p> <p>3 Plan and develop recreation facilities and activities in conformity with applicable ROS class Semi-primitive motorized to Urban</p>	<p>7 New cutting units are designed to give the viewer the perception that not more than five percent of the middleground area in the viewshed has been disturbed</p> <p>8 Landings are to be located outside of seen areas or rehabilitated after the timber sale</p> <p>9 Utility right-of-way clearing are to blend with the natural vegetative pattern where possible</p> <p>10 Overhead utility lines are to be screened where possible, visible transmission towers will exhibit naturally harmonious colors</p> <p>11 Buildings shall exhibit natural harmonious colors</p> <p>12 Gravel, borrow, and stockpile areas are to be excluded from seen area, or rehabilitated after use</p> <p>13 Roads should not dominate natural patterns of form, line, color, and texture within clearcut areas one year after cutting</p> <p>14 Consider revegetating cut and fill slopes to the extent compatible with the surrounding area</p> <p>15 Landscape design should accompany all intersections of arterial and collector roads</p> <p>16 Fire protection measures should not dominate natural patterns of form, line, color, and texture</p> <p>17 Consider a level of prescribed fire, where appropriate, to maintain a natural appearance and enhance visual quality</p> <p>18 Rehabilitation measures are to be applied to landscapes where needed to improve the visual setting</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>RECREATION</u> (continued)	<p>Cultural Resource Evaluation, Assessment and Protection</p> <p><i>Facility and Site Reconstruction and Construction</i></p> <p>Facility and Site Management</p> <p>Use Administration</p> <p>Trail Reconstruction and Construction</p> <p><i>Trail System Maintenance and Operation</i></p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-66</p> <p>1. <i>Forest-wide Standards and Guidelines</i> apply See p IV-67 and 68</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-68</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-68</p> <p>1 Plan and design trail construction and reconstruction projects to meet retention criteria when trails are viewed from roads and viewpoints</p> <p>2 Locate trails to take advantage of scenic viewpoints</p> <p>3 Issue permits and authorizations for activities or facilities compatible with the prescription goal</p> <p>1 <i>Maintain trail corridors</i> to provide a semiprimitive recreation experience</p>	
<u>WILDLIFE AND FISH</u>	<p>Wildlife Surveys and Plans</p> <p><i>Non-Structural and Structural Habitat Improvement</i></p>	<p>1 Develop openings or vistas where wildlife can be viewed in their natural habitat by the public.</p> <p>2 Manage primary cavity excavators at 60 percent of the potential population level.</p> <p>1. <i>Forest-wide Standards and Guidelines</i> apply See p IV-83 and 84</p>	
<u>RANGE</u>	<p>Range Planning and Inventory</p> <p>Range Non-Structural Improvements</p>	<p>1 Grazing of suitable range by livestock shall emphasize range management practices that favor scenic travel corridors</p> <p>2 Management of the range resource under this prescription will feature an intensive scheme of management</p> <p>1 Use only compatible species in range forage improvement projects</p>	<p>1 Management seeks to optimize production and utilization of forage allocated to livestock use consistent with maintaining the environment and providing for multiple use of the range</p> <p>1 Cultural practices may be selected and used to develop cost-effective methods for achieving improved forage supplies and uniform livestock distribution and forage use.</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RANGE</u> (continued)</p>	<p>Range Structural Improvements</p> <p>Range Structural Improvement Maintenance</p> <p>Range Administration and Management</p>	<p>1 Utilize the National Forest Landscape Management Handbook (USDA No 484) "Range" in the design and application of improvements</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-89</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-89</p>	<p>1. Fences and water developments are designed and applied to obtain relatively uniform livestock distribution and use of forage, and to maintain plant vigor</p>
<p><u>TIMBER</u></p>	<p>Regeneration Harvest</p> <p>Intermediate Harvest</p> <p>Silvicultural Examination and Prescription</p> <p>Reforestation</p> <p>Timber Stand Improvement</p> <p>Timber Sale Preparation and Timber Harvest Administration</p> <p>Nursery Management</p>	<p>1 Use shelterwood and small clearcuts subject to standards in Regional Plan, NFMA Regulations, and visual quality objectives</p> <p>1 Will generally use two commercial thinnings</p> <p>2. Remove dead and dying trees, as economical, from areas not scheduled for commercial harvest.</p> <p>1 Make examination prior to any activity and as required for certification of reforestation and thinning.</p> <p>1 Use compatible reforestation methods</p> <p>1 Use methods compatible with the goal</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-93 and 94</p> <p>1 Collect seed in sufficient quantities to meet program reforestation needs plus a sufficient reserve for natural disasters.</p>	<p>1 Extended shelterwood will be the predominant method</p> <p>2 Seed tree cut</p> <p>3 Small clearcuts</p> <p>1 Thin to maintain a minimum basal area that will utilize site potential and produce an economical harvest</p> <p>2 Salvage Sales.</p> <p>1 Stand examination</p> <p>1 Plant all nonstocked areas following regeneration harvest that are not expected to regenerate naturally within three years with desired species Use genetically superior stock as available. Interplant where needed Where feasible, use species suitable for long rotations (pine, larch, Douglas-fir)</p> <p>2 Perform site preparation compatible with the goal.</p> <p>3. Protect seedlings from animal damage where stocking level is threatened,</p> <p>1. Release regeneration overtopped by competing vegetation</p> <p>2. Fertilization will be used where needed to meet the objectives of this management</p> <p>1. Cone collection</p> <p>2 Seed certification.</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>TIMBER</u> (continued)	<i>Genetic Tree Improvement</i>	1 Implement the Forest Tree Improvement Program	1 Select and maintain superior trees  2 Collect seed from superior trees
<u>WATER</u>	Planning  Improvement  <i>Administration and Management</i>  Rights and Use Management	1. Forest-wide Standards and Guidelines apply See p. IV-94  1 Forest-wide Standards and Guidelines apply. See p IV-94 and 96  1. Forest-wide Standards and Guidelines apply See p. IV-94 and 95  1 Forest-wide Standards and Guidelines apply See p IV-95 and 96	
<u>SOIL</u>	Planning and inventory  Improvement  Administration and Management	1 Forest-wide Standards and Guidelines apply See p IV-96  1 Forest-wide Standards and Guidelines apply. See p IV-96  1. Forest-wide Standards and Guidelines apply See p IV-97	
<u>AIR</u>	Planning  Administration and Management	1 Forest-wide Standards and Guidelines apply See p IV-98  1. Forest-wide Standards and Guidelines apply See p IV-98	
<u>MINERALS AND GEOLOGY</u>	Locatable Minerals	1 Withdrawals will be recommended in only a very few situations where it is determined that existing laws and regulations will not provide adequate protection for this prescription area  1 If existing laws and regulations do not provide adequate protection from mineral entry and mining under the 1872 mining law, propose the area be withdrawn  2 If the area is withdrawn, ensure valid existing rights exist before approving any locatable mineral related activities	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>MINERALS AND GEOLOGY</u> (continued)	Leasable Energy Minerals  Common Variety Minerals  Recreational Mineral Activities	1. If reasonable and necessary to maintain the integrity of the area, attach a no surface occupancy stipulation to leases  1 Allow mineral material disposal where removal of this resource is compatible with the objectives established for the area.  1. Forest-wide Standards and Guidelines apply See p IV-99	
<u>RURAL COMMUNITY AND HUMAN RESOURCES</u>		1. Forest-wide Standards and Guidelines apply See p IV-99 and 100	
<u>LANDS</u>	Special Use Management  Right-of-Way Grants for Roads and Trails  Federal Energy Regulatory Commission License and Permits  Withdrawals, Modifications, and Revocations  Property Line Location Property Boundary and Corner Maintenance  Landownership Planning, Land Adjustment Planning, and All Adjustment Activities  Rights-of-Way Cost-Share Agreements	1 Utility corridors are permitted subject to determination of need and requirements necessary to achieve visual objectives  1 Grant requests when necessary  1 Recommend only compatible uses  1. Withdrawals will be recommended only when necessary to meet the goal of the prescription  1 Survey, mark, and post all National Forest property lines  1. Make those land adjustments which will assist in achieving the goal of this prescription  1. Where applicable, use cost-share process to identify road location and standards compatible with the goal	
<u>FACILITIES</u>	Road Construction	1 Reduce the visual impact of roads  2 Fit the landscape with a minimum of landform and vegetation modification  3 Provide for flowing, rather than abrupt changes of grade and alignment Consolidate intersections	1 See National Forest Landscape Management Volume 2, Chapter 4, Roads, or revision.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>FACILITIES</u> (continued)</p>	<p>Road Construction (continued)</p>	<p>4 Provide viewing opportunities for a variety of landforms, waterforms, rockforms, and vegetation</p> <p>5 Provide viewing opportunities for the dominant landform feature</p> <p>6 Rehabilitate existing roads and material sources to meet the specified visual quality objective.</p> <p>7 To the extent practical, screen road from other viewing locations</p> <p>8. To the extent practical, locate roads on stable, fertile, and dark colored soils</p> <p>9 Reduce the visual contrasts of construction</p> <p>10 Utilize waste in positive ways.</p> <p>11 To the extent practical, shape borrow areas and abandoned roads</p> <p>12 Retain as many large rocks as practical within construction slopes.</p> <p>13 Conserve topsoil for revegetation areas</p> <p>14 Mulch with low contrast materials</p> <p>15. Strive for broken-faced rock cuts</p> <p>16 Retain the maximum amount of existing vegetation</p>	<p>1 Consider slope rounding</p> <p>2 Consider slope warping</p> <p>3. Use natural forms for ditches, swales, and channels</p> <p>1 Create screen and variety with mounds</p> <p>2 Fill depressions on uphill side of fills</p> <p>3 Fill cut sections of abandoned roads</p> <p>1 Minimal clearing beyond cut and fills</p> <p>2 Utilize treewells, retaining walls, and binwalls to reduce clearing width</p> <p>3 Allow for some fill over tree roots.</p> <p>4 Protect edges from equipment and blasting damage.</p> <p>5 Maintain the hydrologic regiment</p>



RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>PROTECTION</u>	Fire Prevention	1 Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan.	
	Fire Suppression	1. Implement fire suppression strategies that protect the scenic and recreational values being emphasized in the areas where these prescriptions are being used  2 Fire suppression tactics should minimize physical disturbance when feasible The use of water is preferred to physical disturbance of the site.	
	Fire Hazard Abatement	1. Treatment of both activity generated and natural fuels is appropriate when coordinated with the scenic and recreational values being emphasized in these management areas.	
	Preattack Facilities Development	1. Development of preattack facilities should occur only in areas of high fire frequency and when they do not detract from the scenic or recreational character of the landscape	
	Law Enforcement	1. Forest-wide Standards and Guidelines apply See p IV-103	
	Forest Pest Management	1 Suppress insects and diseases when outbreaks threaten managed resources and/or users.  2. Utilize Integrated Pest Management strategies to prevent unacceptable pest damage and meet resource objectives	

**MANAGEMENT PRESCRIPTION: ST-2**

**TITLE: Scenic Travel - Partial Retention**

**GOAL STATEMENT:** Provide a near natural appearing foreground and middleground along scenic travel corridors.

**DESCRIPTION:** Development and permitted uses will meet the "Partial Retention" Visual Quality Objective in the foreground and middleground viewed from developed recreation sites and designated roads and trails. The foreground of the main use routes will generally have vegetation that is composed of some large trees in the overstory or in groves intermixed with a variety of age classes in the understory. The middleground viewed areas from the main travel routes will generally have the perception of a slightly altered environment. The proposed uses and vegetation management within the allocation will be integrated with the natural landscape so that activities are visually subordinate to the characteristic landscape

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
RECREATION	Recreation Planning and Inventory	1 Visual Quality Objective. PARTIAL RETENTION	<p>1 Landscape architectural input is recommended on all planned activities or developments.</p> <p>2. Provide a diversity of vegetative species and age classes</p> <p>3 Where consistent with existing or predicted insect and disease conditions, strive to grow or maintain large mature ponderosa pine and larch to an age of about 260 years on dry ecosites. For mixed conifer trees to an age of about 180 years on wet ecosites. The number of trees left should retain form, line, color, and texture which are frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, arrangement, and pattern must remain subordinate to the characteristic landscape.</p> <p>4 Regeneration cutting is generally by the extended shelterwood treatment. The design and viewing angle of created openings is more important than size. However, the seen area of openings will normally be 5 acres or less in foreground, and 15 acres or less in middleground.</p> <p>5 Changes in form, line color, and texture resulting from management activities such as skid trails, landings, and prescribed burning should not be evident for more than two seasons</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p>RECREATION (continued)</p>	<p>Recreation Planning and Inventory (continued)</p>	<p>1 Visual Quality Objective PARTIAL RETENTION (continued)</p>	<p>6 New cutting units are designed to give the viewer the perception that not more than five percent of the foreground area in the viewshed (travel corridor) has been disturbed within any one decade</p> <p>7 New cutting units are designed to give the viewer the perception that not more than seven and one-half percent of the seen middleground area in the viewshed has been disturbed within any one decade.</p> <p>8 Landings are to be located outside of seen areas or rehabilitated after timber sale.</p> <p>9. Utility right-of-way clearings are to blend with the natural vegetative pattern where possible.</p> <p>10.Overhead utility lines are to be screened where possible Visible transmission towers will exhibit naturally harmonious colors</p> <p>11 Buildings shall exhibit natural harmonious colors.</p> <p>12.Gravel, borrow, and stockpile areas are to be excluded from seen area or rehabilitated after use</p> <p>13 Roads should not dominate natural patterns of form, line, color, and texture within clearcut areas one year after cutting</p> <p>14 Consider revegetating cut and fill slopes to an extent compatible with the surrounding area</p> <p>15 Landscape design should accompany all intersections of arterial and collector roads.</p> <p>16 Fire protection measures should not dominate natural patterns of form, line, color, and texture</p> <p>17. Consider a level of prescribed fire where appropriate to maintain a natural appearance and enhance visual quality</p> <p>18 Rehabilitation measures are to be applied to landscapes where needed to improve the visual setting</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
RECREATION (continued)	Recreation Planning and Inventory (continued)	<p>2 Attempt to preserve indefinitely a few small patches of old-growth timber for viewing by travelers Strive to retain a few scattered old-growth or "character" trees throughout the corridor to add to visual variety.</p> <p>3 Plan recreation facilities and activities to conform to the Roaded natural ROS class criteria and harmonize with prescription goal</p>	
	Cultural Resource Evaluation, Assessment and Protection	1 Forest-wide Standards and Guidelines apply See p IV-66	
	Facility and Site Reconstruction and Construction	1 Forest-wide Standards and Guidelines apply See p IV-67 and 68	
	Facility and Site Management	1 Forest-wide Standards and Guidelines apply See p. IV-68	
	Use Administration	<p>1. Manage and maintain trail corridors to meet visual quality and recreation setting objectives of the prescription</p> <p>2 Issue permits when compatible with the goal.</p>	
	Trail Reconstruction and Construction	1. Plan and design trail construction and reconstruction projects to meet partial retention criteria as trail is viewed from roads or viewpoints	
	Trail System Maintenance and Operation	1 Forest-wide Standards and Guidelines apply See p IV-69	
<u>WILDLIFE AND FISH</u>	Wildlife Surveys and Plans	<p>1 Regulate human activities where necessary to prevent habitat degradation and wildlife harassment</p> <p>2 Develop openings or vistas where wildlife can be viewed in their natural habitat by the public</p> <p>3. Manage primary cavity excavators at 60 percent of the potential population level</p>	
Non-Structural and Structural Habitat Improvement	1 Forest-wide Standards and Guidelines apply See p IV- 83 and 84		

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>RANGE</u>	Range Planning and Inventory	<p>1 Grazing of suitable range by livestock shall emphasize range management practices that are compatible with scenic travel corridors</p> <p>2 Management of the range resource under this prescription will feature an intensive scheme of management</p>	<p>1 Management seeks utilization of forage allocated to livestock. Cost effective management systems and techniques are designed and applied to obtain relatively uniform livestock distribution and use of forage, and to maintain plant vigor</p>
	Range Non-Structural Improvements	<p>1. Use only compatible species in range forage improvement projects</p>	<p>1. Cultural practices such as brush control, type conversion, fertilization, site preparation, and seeding of improved forage species may be used to improve quality and quantity of forage</p>
	Range Structural Improvements	<p>1. Utilize the National Forest Landscape Management Handbook (USDA No. 484) "Range" in the design and application of improvements</p>	<p>1. Cultural practices may be combined with fencing and water developments to implement complex grazing systems</p>
	Range Structural Improvement Maintenance	<p>1. Forest-wide Standards and Guidelines apply See p IV-89</p>	
	Range Administration and Management	<p>1 Forest-wide Standards and Guidelines apply See p. IV-89</p>	
<u>TIMBER</u>	Regeneration Harvest	<p>1 Use shelterwood and small clearcuts subject to standards in Regional Plan, NFMA Regulations, and visual quality objectives</p>	<p>1. Extended shelterwood will be the predominant method in the foreground</p>
	Intermediate Harvest	<p>1 Will generally use two commercial thinnings</p> <p>2. Remove dead and dying trees, as economical, from areas not scheduled for commercial harvest</p>	<p>1 Thin to maintain a minimum basal area that will utilize site potential and produce an economical harvest.</p> <p>1 Salvage Sales</p>
	Silvicultural Examination and Prescription	<p>1. Make examination prior to any activity and as required for certification of reforestation and thinning</p>	<p>1 Stand examination</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><b>TIMBER</b> (continued)</p>	<p>Reforestation</p>	<p>1. Use compatible reforestation methods.</p>	<p>1 Plant all nonstocked areas following regeneration harvest that are not expected to regenerate naturally within three years with desired species Use genetically superior stock as available. Interplant where needed. Where available, use species suitable for long rotations (pine, larch, Douglas-fir)</p> <p>2 Perform site preparation as required by site specifications.</p> <p>3. Protect seedlings from animal damage where stocking level is threatened</p>
	<p>Timber Stand Improvement</p>	<p>1 Use methods compatible with the goal.</p>	<p>1. Release regeneration overtopped by competing vegetation</p> <p>2 Fertilization will be used where needed to meet objectives of the management prescription</p>
	<p>Timber Sale Preparation and Timber Harvest Administration</p>	<p>1. Forest-wide Standards and Guidelines apply See p. IV- 93 and 94</p>	
	<p>Nursery Management</p>	<p>1. Collect seed in sufficient quantities to meet program reforestation needs plus a sufficient reserve for natural disasters</p>	<p>1 Cone collection</p> <p>2 Seed certification</p>
	<p>Genetic Tree Improvement</p>	<p>1 Implement the Forest Tree Improvement Program.</p>	<p>1 Select and maintain superior trees</p> <p>2 Collect seed from superior trees.</p>
<p><b>WATER</b></p>	<p>Planning</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 94</p>	
	<p>Improvement</p>	<p>1 Forest-wide Standards and Guidelines apply. See p. IV- 94 and 96</p>	
	<p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p. IV-94 and 95</p>	
	<p>Rights and Use Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV- 95 and 96</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>SOIL</u></p>	<p>Planning and Inventory</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-96</p>	
	<p>Improvement</p>	<p>1 Forest-wide Standards and Guidelines apply See p. IV-96</p>	
	<p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-97</p>	
<p><u>AIR</u></p>	<p>Planning</p>	<p>1. Forest-wide Standards and Guidelines apply. See p IV-98</p>	
	<p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-98</p>	
<p><u>MINERALS AND GEOLOGY</u></p>	<p>Locatable Minerals</p>	<p>1 Withdrawals will be recommended only in a very few situations where it is determined that existing laws and regulations will not provide adequate protection for this prescription area</p> <p>1 if existing laws and regulations do not provide adequate protection from the impacts of entry and mining under the 1872 Mining Law, recommend the area be withdrawn</p> <p>2 If the area is withdrawn, ensure that valid existing rights exist before approving mining related activities.</p>	
	<p>Leasable Energy Minerals</p>	<p>1. Forest-wide Standards and Guidelines apply See p. IV-98 and 99</p>	
	<p>Common Variety Minerals</p>	<p>1 Allow mineral material disposal where removal can be made compatible with the objectives established for these areas</p>	
	<p>Recreational Mineral Activities</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV-99</p>	
<p><u>RURAL COMMUNITY AND HUMAN RESOURCES</u></p>		<p>1. Forest-wide Standards and Guidelines apply See p IV-99 and 100</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>LANDS</u>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Withdrawals, Modifications, and Revocations</p> <p>Property Line Location <i>Property Boundary and Corner Maintenance</i></p> <p>Landownership Planning, Land Adjustment Planning, and All Adjustment Activities</p> <p>Rights-of-Way Cost-Share Agreements</p>	<p>1 <i>Utility corridors are permitted subject to determination of need and requirements necessary to achieve visual objectives</i></p> <p>1 Grant requests when necessary</p> <p>1 Recommend only compatible uses</p> <p>1. <i>Withdrawals will be recommended only when necessary to meet the goal of the prescription</i></p> <p>1 Survey, mark, and post all <i>National Forest property lines</i></p> <p>1 Make those land adjustments which will assist in achieving the goal of this prescription</p> <p>1 Where applicable, use cost-share process to identify road location and standards compatible with the goal</p>	
<u>FACILITIES</u>	<p>Road Construction</p> <p>Road Operation</p> <p>FA&amp;O Construction and Reconstruction</p>	<p>1 Reduce the visual impact of roads</p> <p>2 Consistent with the amount and type of use, utilize the standards and guidelines for ST-1.</p> <p>1. <i>Appropriate road use will be determined during project planning and design</i></p> <p>1 Forest-wide Standards and Guidelines apply See p IV-102 and 103</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>PROTECTION</u></p>	<p>Fire Prevention</p>	<p>1. Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan.</p>	
	<p>Fire Suppression</p>	<p>1 Implement fire suppression strategies that protect the scenic and recreational values being emphasized in the areas where these prescriptions are being used</p> <p>2 Fire suppression tactics should minimize physical disturbance when feasible The use of water is preferred to physical disturbance of the site.</p>	
	<p>Fire Hazard Abatement</p>	<p>1. Treatment of both activity generated and natural fuels is appropriate when coordinated with the scenic and recreational values being emphasized in these management areas.</p>	
	<p>Preattack Facilities Development</p>	<p>1 Development of preattack facilities should occur only in areas of high fire frequency and when they do not detract from the scenic or recreational character of the landscape</p>	
	<p>Law Enforcement</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-103</p>	
	<p>Forest Pest Management</p>	<p>1. Suppress insects and diseases when outbreaks threaten managed resources and/or users Use suppression methods that minimize site disturbance</p> <p>2 Utilize Integrated Pest Management strategies to prevent unacceptable pest damage and meet resource objectives</p>	

**MANAGEMENT PRESCRIPTION: UC-1**

**TITLE: Utility Corridors**

**GOAL STATEMENT:** Provide and manage utility corridors to accommodate energy transmission needs

**DESCRIPTION:** This prescription is applicable to existing and potential utility and transmission corridors. It includes the land directly under and adjacent to the pipeline or powerline facility (clearing limits). Compatible facilities are combined in the same corridor whenever possible. Resource uses, such as grazing, and dispersed recreation activities, such as camping, mushroom and berry picking, Christmas tree cutting, etc., may be compatible in some areas.

<b>RESOURCE ELEMENT</b>	<b>MANAGEMENT ACTIVITY</b>	<b>STANDARDS AND GUIDELINES</b>	<b>MANAGEMENT PRACTICE</b>
<b>RECREATION</b>	Recreation Planning and Inventory  Cultural Resource Evaluation, Assessment and Protection  Facility and Site Reconstruction and Construction  Facility and Site Management  Use Administration  Trail Reconstruction and Construction  Trail System Maintenance and Operation	1. Visual Quality Objective <b>MAXIMUM MODIFICATION</b>  2 Plan recreation activities to conform to the appropriate ROS class criteria within the range of Roaded modified to Urban  1 Forest-wide Standards and Guidelines apply See p. IV-66  1 Forest-wide Standards and Guidelines apply. See p IV-67 and 68  1 Forest-wide Standards and Guidelines apply. See p IV-68  1 Manage dispersed recreation activities to emphasize uses that are compatible with utility corridor objectives  1 Forest-wide Standards and Guidelines apply. See p. IV-68 and 69  1 Forest-wide Standards and Guidelines apply See p. IV-69	1 A visual analysis is required to blend activities with the naturally established landscape.  2 Rehabilitation measures may be applied to the landscape where needed to improve the visual setting.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p>	<p>1 Management for primary cavity excavators is incompatible with this prescription</p>	
	<p>Non-Structural and Structural Habitat Improvements</p>	<p>1 Forest-wide Standards and Guidelines apply See p. IV-83 and 84</p>	
<p><u>RANGE</u></p>	<p>Range Planning and Inventory</p>	<p>1 Suitable range will be available for allocation to livestock and managed at the same intensity level as adjoining prescription</p>	
	<p>Range Non-Structural and Structural Improvements</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-89 and 92</p>	
	<p>Range Structural Improvement Maintenance</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV-89</p>	
	<p>Range Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV-89</p>	
<p><u>TIMBER</u></p>	<p>Regeneration Harvest</p>	<p>1 No scheduled harvest. Use improvement and salvage cutting when compatible with the prescription goal</p>	
	<p>Intermediate Harvest</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-92</p>	
	<p>Silvicultural Examination and Prescription</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-92</p>	
	<p>Reforestation</p>	<p>1 May be reforested to grow products compatible with the goal</p>	
	<p>Timber Stand Improvement</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-93</p>	
	<p>Timber Sale Preparation and Timber Harvest Administration</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-93 and 94</p>	
	<p>Nursery Management and Genetic Tree Improvement</p>	<p>1 No special practice</p>	
<p><u>WATER</u></p>	<p>Planning</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-94</p>	
	<p>Improvement</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV-94 and 96</p>	
	<p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV-94 and 95</p>	
	<p>Rights and Use Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-95 and 96</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>SOIL</u>	Planning and Inventory  Improvement  Administration and Management	1. Forest-wide Standards and Guidelines apply See p IV-96  1 Forest-wide Standards and Guidelines apply See p IV-96  1. Forest-wide Standards and Guidelines apply See p IV-97	
<u>AIR</u>	Planning  Administration and Management	1. Forest-wide Standards and Guidelines apply. See p IV-98  1. Forest-wide Standards and Guidelines apply See p IV-98	
<u>MINERALS AND GEOLOGY</u>	Locatable Minerals  Leaseable Energy Minerals  Common Variety Minerals  Recreational Mineral Activities	1. Ensure permittee's improvements are appropriately protected or impacts are mitigated  1. Same as for Locatable Minerals  1. Same as for Locatable Minerals  1 Forest-wide Standards and Guidelines apply See p IV-99	
<u>RURAL COMMUNITY AND HUMAN RESOURCES</u>		1. Forest-wide Standards and Guidelines apply. See p. IV-99 and 100	
<u>LANDS</u>	Special Use Management  Right-of-Way Grants for Roads and Trails  Federal Energy Regulatory Commission License and Permits  Property Line Location Property Boundary and Corner Maintenance	1 Forest-wide Standards and Guidelines apply See p IV-100  1. Provide appropriate access to inholders under then existing guidelines  2 Utility right-of-way clearing is to blend with the natural vegetative pattern where possible  1 These areas will have priority for new applications  2 Overhead utility lines are to be screened where possible, visible transmission towers require naturally harmonious colors  1 Forest-wide Standards and Guidelines apply See p. IV-100	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>LANDS</u> (continued)</p>	<p>Landownership Planning, Land Adjustment Planning, and All Adjustments Activities</p> <p>Rights-of-Way Cost-Share Agreements</p>	<p>1. Forest-wide Standards and Guidelines apply See p. IV-100 and 101</p> <p>1. Proposed cost share access road locations and standards will be coordinated with corridor managers</p>	
<p><u>FACILITIES</u></p>	<p>Road Construction</p> <p>Road Operation</p> <p>FA&amp;O Construction and Reconstruction</p>	<p>1 Provide and manage roads as needed to accomplish resource objectives</p> <p>1. Encourage, accept, discourage, eliminate or prohibit road use as determined by project planning and design</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-102 and 103</p>	
<p><u>PROTECTION</u></p>	<p>Fire Prevention</p> <p>Fire Suppression</p> <p>Fire Hazard Abatement</p> <p>Preattack Facilities Development</p> <p>Law Enforcement</p> <p>Forest Pest Management</p>	<p>1 Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan.</p> <p>1 Implement fire suppression strategies that emphasize the protection of the facilities associated with the utility transmission corridors</p> <p>2. Fire suppression tactics should emphasize the protection of life and property The use of all fire suppression resources is appropriate.</p> <p>1 Treatment of both activity generated and natural fuels is appropriate when the activities enhance the management objectives of the utility corridor</p> <p>1. Forest-wide Standards and Guidelines apply. See p IV-103</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-103</p> <p>1 Suppress insects and diseases when outbreaks threaten managed resources and integrity of structures</p> <p>2 Utilize Integrated Pest Management strategies to prevent unacceptable pest damage and meet resource objectives</p>	



RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u></p>	<p>Facility and Site Management</p>	<p>1 Facilities and campsites, where appropriate, will be managed to minimize social and biological resource impacts</p>	<p>1 Campsites with fire rings may be retained and managed to provide campsite opportunities and help direct users to specific sites capable of withstanding use impacts</p> <p>2 Sites in excess of user need or sites showing unacceptable change in social or biological condition may be obliterated and rehabilitated. Appropriate management actions to correct the situation are described in Appendix E</p>
	<p>Use Administration</p>	<p>1 Management actions will be implemented to control or restrict visitor use when user impacts result in a change in biological or social resource conditions that approach limits of acceptable change. Appropriate management actions are explained in Appendix E</p> <p>2 Wilderness Ranger contacts with recreation visitors for educational, instructive and informative purposes will generally be made outside wilderness or in high visitor use areas. Contacts inside wilderness will be in accord with the managerial setting for each WROS class</p> <p>3 Permits or authorizations to providers of commercial recreation opportunities will be issued when appropriate to the goals of wilderness management and where compatible with the WROS class and existing visitor use of an area</p>	<p>1. Monitoring will measure the specific parameters of key indicators of biological or social conditions</p> <p>2 Monitoring measurements will be conducted in areas receiving significant visitor use, at least every five years to record trends of change</p>
	<p>Trail Reconstruction and Construction</p>	<p>1 Trail construction and reconstruction will occur to protect biological resource values and to meet wilderness management objectives</p>	<p>1 Trail location and design standards will be compatible with WROS class criteria.</p> <p>2 No trails will be constructed in pristine WROS Class areas</p> <p>3 Trails may be relocated into Primitive WROS class areas if necessary to solve resource management problems. However, the solitude and remoteness of a primitive area will not be sacrificed to distribute or accommodate more use</p>
		<p>2 Trail reconstruction or construction specifications will meet trail objectives and conform with specifications of the appropriate WROS class in which the trail is located</p>	<p>1 Specific trail objectives identifying the role, purpose, destination, level, and type of use and expectations of the users will be established for each trail.</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>RECREATION</u> (continued)	Trail System Maintenance and Operation	1 The trail system will be maintained and operated as appropriate to trail objectives and the appropriate WROS class for the area accessed by the trail	
<u>WILDLIFE AND FISH</u>	Wildlife Surveys and Plans  Non-Structural and Structural Habitat Improvement	1 Manage primary cavity excavators at 100 percent of the potential population level  1 Forest-wide Standards and Guidelines apply See p. IV-83 and 84	
<u>RANGE</u>	Range Planning and Inventory      Range Non-Structural Improvements  Range Structural Improvements  Range Structural Improvement Maintenance  Range Administration and Management	1. Allotment Management Plans will define the specific allocation of forage resources, the grazing management system, and the monitoring necessary to achieve wilderness management objectives and maintain range conditions within acceptable limits of change  2 Management of the range resource under this prescription will feature a stewardship (Level B) management scheme. There will be no increased range use.  3 Where conflicts are identified on suitable range, these will be minimized through range management practices that emphasize management needs  1. Manage existing plants only  1 Utilize the National Forest Landscape Management Handbook (USDA No 484) "Range" in the design and application of improvements.  1 Reconstruct, relocate, or eliminate range improvements that are not compatible  1. Forest-wide Standards and Guidelines apply See p IV-89	1 Monitoring will be conducted in allotment management at frequencies that will record and document vegetative conditions and trends      1 Level B Management - Management controls livestock numbers so that livestock use is within present grazing capacity. Distribution is achieved through riding, herding and/or salting.   1. Improvements are minimal and constructed only to the extent needed to cost effectively maintain stewardship of the range resource in the presence of grazing.
<u>TIMBER</u>	Not applicable to this prescription		

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>WATER</u>	<p>Planning</p> <p>Improvement</p> <p>Administration and Management</p> <p>Rights and Use Management</p>	<p>1. Educate visitors to maintain water quality</p> <p>2. Water resource improvements shall be consistent with the Wilderness Act.</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-94 and 96</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-94 and 95</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-95 and 96</p>	
<u>SOIL</u>	<p>Planning and Inventory</p> <p>Improvement</p> <p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV-96</p> <p>1 Rehabilitate degraded sites caused by management activities or visitor use.</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-97</p>	<p>1 Rehabilitation will utilize only materials and techniques that are compatible with the wilderness</p>
<u>AIR</u>	<p>Planning</p> <p>Administration and Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-98</p> <p>1 Protect air quality related values (AQRV's) within all Class I areas</p>	<p>1. Management activities which are ongoing within the area will be conducted in a manner which protects Air Resource quality to a standard that meets or exceeds the guidance provided by the Clean Air Act.</p>
<u>MINERALS AND GEOLOGY</u>		<p>1 Even though these areas are withdrawn, allow prospecting in accordance with Section 4(d)(2) of the Wilderness Act. This may include private parties, State Agencies, the US Geological Survey or the US Bureau of Mines</p> <p>2 If recently located mining claims are encountered, inform the claimant that the area is no longer subject to location</p>	



RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>FACILITIES</u>	Road Construction	1 No roads will be constructed or maintained except that reasonable access will be granted to landlocked Inholders under the then prevailing guidelines	
<u>PROTECTION</u>	<p>Fire Prevention</p> <p>Fire Suppression</p> <p>Fire Hazard Abatement</p> <p>Preattack Facilities Development</p> <p>Law Enforcement</p> <p>Forest Pest Management</p>	<p>1. Implement a low intensity fire prevention program as outlined in the Forest's Fire Management Action Plan.</p> <p>1. All naturally occurring fires will initially be considered prescribed fires. A timely analysis will be conducted and if the situation does not comply with all elements of the prescription it will be declared a wildfire.</p> <p>2. All wildfires will be suppressed utilizing an appropriate suppression strategy. Suppression tactics that minimize physical disturbance will be used.</p> <p>3. All human caused fires will be considered wildfires.</p> <p>1. Naturally occurring fires burning within prescription will be managed in an attempt to replicate the natural fire cycle.</p> <p>2. Management ignited fire may be used to replicate the natural fire cycle where ignitions are infrequent or to protect adjacent values.</p> <p>1. The development of Preattack facilities is not appropriate.</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-103</p> <p>1. Suppress insects and diseases when outbreaks threaten resources in adjacent areas. Favor biological controls when available.</p> <p>2. Survey pest populations as a management strategy for adjacent resource areas.</p>	

**WS-1 AND WS-2**

**MANAGEMENT PRESCRIPTION: WS-1**

**TITLE: Scenic River (Proposed)**

**GOAL STATEMENT:** Preserve the Scenic River characteristics of the river and surrounding area pending a decision on its legislative designation as part of the Wild and Scenic Rivers System.

**DESCRIPTION:** This prescription is for application to those river segments on the Forest that are free of impoundments, and have largely primitive watersheds or shorelines but are accessible by road in places.

**MANAGEMENT PRESCRIPTION: WS-2**

**TITLE: Recreational River (Proposed)**

**GOAL STATEMENT:** Preserve the Recreational River characteristics of the river and surrounding area pending a decision on its legislative designation as part of the Wild and Scenic Rivers System

**DESCRIPTION:** This prescription is for application to those river segments on the Forest that are readily accessible by road or railroad, may have some development along their shorelines, and may have undergone some impoundment or diversion in the past.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>RECREATION</u>	Recreation Planning and Inventory	1 Visual Quality Objective RETENTION	<p>1 Landscape architectural input is required when planning an activity or constructing improvements</p> <p>2 Provide a diversity of vegetative species and age classes.</p> <p>3 Where consistent with existing or predicted insect and disease conditions, strive to grow or maintain large (24-36" diameter) mature ponderosa pine, larch, and mixed conifers to an age of about 260 years. The amount of trees left should retain form, line, color, and texture which are frequently found in the characteristic landscape. Changes in their qualities of size, amount, intensity, direction, and pattern should not be evident</p> <p>4 Regeneration cutting is generally by the extended shelterwood treatment. The design and viewing angle of created openings is more important than size. However, the seen area of openings generally should not exceed three acres in the foreground, and five acres in the middleground</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u> (continued)</p>	<p>Recreation Planning and Inventory (continued)</p>	<p>1. Visual Quality Objective. <b>RETENTION</b> (continued)</p>	<p>5 Activities creating form, line, color, and texture changes such as slid trails, red needles, and black ground from burning, should not be evident for more than one season</p> <p>6. New cutting units are designed to give the viewer the perception that not more than three percent of the foreground area in the viewshed has been disturbed within any one decade.</p> <p>7 New cutting units are designed to give the viewer the perception that not more than five percent of the middleground area in the viewshed has been disturbed</p> <p>8 Landings are to be located outside of seen areas or rehabilitated after timber sales</p> <p>9 Utility right-of-way clearings are to blend with the natural vegetative pattern</p> <p>10 Overhead utility lines are to be screened where possible, visible transmission towers will exhibit naturally harmonious colors</p> <p>11 Buildings shall exhibit natural harmonious colors</p> <p>12 Gravel, borrow and stockpile areas are to be excluded from the seen area or be rehabilitated after use</p> <p>13. Roads must not dominate natural patterns of form, line, color, texture within clearcut areas one year after cutting</p> <p>14 Revegetate cut and fill slopes to the extent compatible with the surrounding area</p> <p>15 Landscape design is to accompany all intersections of arterial and collector roads</p> <p>16 Fire protection measures shall not dominate natural patterns of form, line, color, and texture.</p> <p>17 Consider a level of prescribed fire where appropriate to maintain natural appearance and enhance visual quality</p> <p>18 Rehabilitation measures are to be applied to the landscape where needed to improve the visual setting</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u> (continued)</p>	<p>Recreation Planning and Inventory (continued)</p> <p>Cultural Resource Protection</p> <p>Facility and Site Reconstruction</p> <p>Facility and Site Construction</p> <p>Facility and Site Management</p> <p>Use Administration</p> <p>Trail Reconstruction</p> <p>Trail Construction</p> <p>Trail System Maintenance and Operation</p>	<p>2. Plan recreation activities and facility development to conform to the appropriate ROS class criteria within the range of Roded natural to urban.</p> <p>3 Motorized use is appropriate when compatible with the management goal.</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-66</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-67 and 68</p> <p>1 New facilities should be screened from scenic rivers</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-68</p> <p>1 Encourage recreation use and activities to the setting of the Recreational or Scenic River designation</p> <p>2. Issue permits for land uses and activities that are compatible with the prescription goal</p> <p>1. Forest-wide Standards and Guidelines apply See p. IV-68</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-68 and 69</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-69</p>	
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p> <p>Non-Structural Habitat Improvement</p> <p>Structural Habitat Improvement</p>	<p>1. Manage primary cavity excavators at 60 percent of the potential population level.</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-83 and 84</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV-83 and 84</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>RANGE</u>	<p>Range Planning and Inventory</p> <p>Range Non-Structural Improvements</p> <p>Range Structural Improvements</p> <p>Range Structural Improvement Maintenance</p> <p>Range Administration and Management</p>	<p>1. Grazing of suitable range by livestock shall emphasize range management practices that favor potential Recreational and Scenic Rivers</p> <p>2 Management of the range resource under this prescription will feature a Level C scheme of management</p> <p>3. Intensive cultural practices will not be used</p> <p>1. Use only compatible species in range forage improvement projects</p> <p>1 Utilize the National Forest Landscape Management Handbook (USDA No 484) "Range" in the design and application of improvements</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-89</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-89</p>	<p>1 Level C Management - Management seeks utilization of forage allocated to livestock</p> <p>1 Cost effective management systems and techniques including fences and water developments are designed and applied to obtain relatively uniform livestock distribution and use of forage and to maintain plant vigor</p>
<u>TIMBER</u>	<p>Planning and Inventory</p> <p>Regeneration Harvest</p> <p>Intermediate Harvest</p> <p>Silvicultural Examination and Prescription</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-92</p> <p>1 Use shelterwood and small patchcuts subject to standards in Regional Plan, NFMA Regulations and visual quality objectives</p> <p>2 Entiat River from Cottonwood trailhead to Wilderness boundary will have no scheduled harvest</p> <p>1 Remove dead and dying trees, as economical, from areas not scheduled for commercial harvest</p> <p>2 Will generally use two commercial thinnings</p> <p>3 Entiat River from Cottonwood trailhead to Wilderness boundary will have no scheduled harvest</p> <p>1 Make examination prior to any activity and as required for certification of reforestation and thinning</p>	<p>1 Extended shelter wood will be the predominant method.</p> <p>2 Seed tree cut</p> <p>3 Small clearcuts</p> <p>1 Salvage Sales</p> <p>2 Thin to maintain a minimum basal area that utilize site potential and produce an economical harvest</p> <p>1 Stand examination</p>

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>TIMBER</u> (continued)	Reforestation	1 Use compatible reforestation methods	<p>1. Plant all nonstocked areas following regeneration harvest, unless natural regeneration is expected within 3 years. Use genetically superior stock as available. Interplant where needed. Use species suitable for long rotations (pine, larch, Douglas-fir)</p> <p>2 Perform site preparation as required by site specifications.</p> <p>3 Protect seedlings from animal damage.</p>
	Timber Stand Improvement	1. Use methods compatible with the goal	
	Timber Sale Preparation and Timber Harvest Administration	1 Forest-wide Standards and Guidelines apply See p IV-93 and 94	
	Nursery Management	1 Collect seed in sufficient quantities to meet program reforestation needs plus a sufficient reserve for natural disasters.	<p>1 Cone collection</p> <p>2 Seed certification</p>
	Genetic Tree Improvement	1 Implement the Forest Tree Improvement Program	<p>1. Select and maintain superior trees</p> <p>2. Collect seed from superior trees</p>
	Reforestation Animal Control	1. Forest-wide Standards and Guidelines apply. See p IV-92 and 93	
<u>WATER</u>	Planning	1 Forest-wide Standards and Guidelines apply. See p IV-94	
	Improvement	1 Forest-wide Standards and Guidelines apply See p IV-94 and 96	
	Administration and Management	1 Forest-wide Standards and Guidelines apply See p IV-94 and 95	
	Rights and Use Management	1 Forest-wide Standards and Guidelines apply. See p IV-95 and 96	
<u>SOIL</u>	Planning and Inventory	1 Forest-wide Standards and Guidelines apply. See p IV-96	
	Improvement	1 Forest-wide Standards and Guidelines apply See p IV-96	
	Administration and Management	1 Forest-wide Standards and Guidelines apply See p. IV-97	

**WS-1,2**

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>AIR</u>	<p>Planning</p> <p>Administration and Management</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-98</p> <p>1 Forest-wide Standards and Guidelines apply See p. IV-98</p>	
<u>MINERALS AND GEOLOGY</u>	<p>Locatable Minerals</p> <p>Leaseable Energy Minerals</p> <p>Common Variety Minerals</p> <p>Recreation Minerals Activities</p>	<p>1. Forest-wide Standards and Guidelines apply until the river component is designated part of the Wild and Scenic River system Mining activities shall then be subject to such regulations as the Secretary of Agriculture may prescribe</p> <p>1 Same as Locatable Minerals</p> <p>1. Same as Locatable Minerals</p> <p>1 Same as Locatable Minerals</p>	
<u>RURAL COMMUNITY AND HUMAN RESOURCES</u>		<p>1. Forest-wide Standards and Guidelines apply. See p IV-99 and 100</p>	
<u>LANDS</u>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Withdrawals, Modifications, and Revocations</p> <p>Property Line Location Property Boundary and Corner Maintenance</p> <p>Landownership Planning, Land Adjustment Planning, and All Adjustment Activities</p>	<p>1 Avoid locating transportation and utility corridors in these areas</p> <p>1 Provide appropriate access to inholder under then existing guidelines</p> <p>1. Recommend only compatible uses</p> <p>1 Mineral withdrawal will not be recommended upon classification.</p> <p>1 Property lines of those inholdings not to be acquired will be surveyed, marked and posted to full standard</p> <p>1 Identify those lands needed in National Forest ownership to meet management goals</p> <p>2 Identify those lands which can be left in other ownerships, or would contribute to the proposed management goals in other ownership</p> <p>3 Use partial takings to maximum extent consistent with management goals</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>LANDS</u> (continued)	Rights-of-Way Cost-Share Agreements	1 Forest-wide Standards and Guidelines apply See p IV-101	
<u>FACILITIES</u>	Road Construction	1 Provide and manage roads to accomplish resource objectives	1. Scenic Rivers Roads may occasionally bridge the rivers Short stretches of conspicuous roads or longer stretches of inconspicuous or well screened roads are allowed  2 Recreational Rivers' Roads may parallel on one or both river banks There can be several bridge crossings and numerous river access points
	Road Operation	1 Appropriate road use will be determined by project planning and design	
	FA&O Construction and Reconstruction	1. Forest-wide Standards and Guidelines apply See p IV-102 and 103	
<u>PROTECTION</u>	Fire Prevention	1 Implement a high intensity fire prevention program as outlined in the Forest's Fire Management Action Plan	
	Fire Suppression	1 Implement fire suppression strategies that attempt to protect the scenic and recreational values being emphasized in the areas where these prescriptions are being used 2. Fire suppression tactics should minimize physical disturbance when feasible The use of water is preferred to physical disturbance of the site	
	Fire Hazard Abatement	1 Treatment of both activity generated and natural fuels is appropriate when coordinated with the scenic and recreational values being emphasized in these management areas	
	Preattack Facilities Development	1. Development of preattack facilities should occur only in areas of high fire frequency and when they do not detract from the scenic or recreational character of the landscape	
	Law Enforcement	1 Forest-wide Standards and Guidelines apply. See p IV-103	
	Forest Pest Management	1 Suppress insect and disease outbreaks to preserve recreational character and adjacent resources. Avoid degradation of water quality 2 Utilize Integrated Pest Management strategies to prevent unacceptable pest damage and meet resource goals. 3. Inspect defective trees for unacceptable hazard to users and facilities.	

**MANAGEMENT PRESCRIPTION: WS-3**

**TITLE: Wild River (proposed)**

**GOAL STATEMENT:** Preserve the Wild River characteristics of the river and surrounding area pending a decision on its legislative designation as part of the Wild and Scenic Rivers System.

**DESCRIPTION:** This prescription is applicable to those river segments that are free of impoundments and generally inaccessible except by trail, with watersheds or shoreline essentially primitive and waters unpolluted. These represent vestiges of primitive America.

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>RECREATION</u></p>	<p>Recreation Planning and Inventory</p>	<p>1. Visual Quality Objective. PRESERVATION</p> <p>2 Plan recreation activities that conform to the primitive and Semi-primitive non-motorized ROS classes</p> <p>3 Motorized use may be appropriate depending upon current uses and adjacent allocations</p>	<p>1 Fire protection measures should not dominate natural patterns of form, line, color, and texture</p> <p>2 Consider a level of prescribed fire where appropriate to maintain natural appearance and enhance visual quality</p> <p>3 Rehabilitation measures are to be applied to the landscape where needed to improve the visual setting</p>
	<p>Cultural Resource Evaluation, Assessment and Protection</p>	<p>1 Forest-wide Standards and Guidelines apply. See p IV-66</p>	
	<p>Facility and Site Reconstruction and Construction</p>	<p>1 Where practical locate new structures outside of the zone</p>	
	<p>Facility and Site Management</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-68</p>	
	<p>Use Administration</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-68</p>	
	<p>Trail Reconstruction and Construction</p>	<p>1. Forest-wide Standards and Guidelines apply See p IV-68 and 69</p>	
<p><u>WILDERNESS</u></p>	<p>Wilderness and Wild River Mgmt</p>	<p>1 In case of conflict between wilderness management and Wild River management, the more restrictive prescription shall apply</p>	

**WS-3**

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>WILDLIFE AND FISH</u></p>	<p>Wildlife Surveys and Plans</p> <p>Non-Structural and Structural Habitat Improvement</p>	<p>1. Manage primary cavity excavators at 100 percent of the potential population level</p> <p>1. Forest-wide Standards and Guidelines apply. See p. IV-83 and 84</p>	
<p><u>RANGE</u></p>	<p>Range Planning and Inventory</p> <p>Range Non-Structural Improvements</p> <p>Range Structural Improvements</p> <p>Range Structural Improvement Maintenance</p> <p>Range Administration and Management</p>	<p>1. Grazing of suitable range by livestock shall emphasize range management practices that protect Wild Rivers.</p> <p>2. Management of the range resource under prescription will feature a Level C scheme of management.</p> <p>3 Intensive cultural practices will not be used.</p> <p>1 Use only compatible species in range forage improvement projects</p> <p>1. Utilize the National Forest Landscape Management Handbook (USDA No 484) "Range" in the design and application of improvements</p> <p>1 Forest-wide Standards and Guidelines apply. See p IV-89</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-89</p>	<p>1 Level C Management - Management seeks utilization of forage allocated to livestock.</p> <p>1 Cost effective management systems and techniques including fences and water developments are designed and applied to obtain relatively uniform livestock distribution and use of forage, and to maintain plant vigor</p>
<p><u>TIMBER</u></p>	<p>Not Applicable to this Prescription</p>		
<p><u>WATER</u></p>	<p>Planning</p> <p>Improvement</p> <p>Administration and Management</p> <p>Rights and Use Management</p>	<p>1 Forest-wide Standards and Guidelines apply See p IV-94</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-94 and 96</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-94 and 95</p> <p>1 Forest-wide Standards and Guidelines apply See p IV-95 and 96</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<u>SOIL</u>	Planning and Inventory  Improvement  Administration and Management	1. Forest-wide Standards and Guidelines apply See p IV-96  1 Forest-wide Standards and Guidelines apply. See p IV-96  1 Forest-wide Standards and Guidelines apply. See p IV-97	
<u>AIR</u>	Planning  Administration and Management	1. Forest-wide Standards and Guidelines apply. See p. IV-98  1. Forest-wide Standards and Guidelines apply. See p. IV-98	
<u>MINERALS AND GEOLOGY</u>	Locatable Minerals        Leasable Energy Minerals        Common Variety Minerals        Recreational Minerals	1. Forest-wide Standards and Guidelines apply until the component is designated part of the system Upon designation the river segment and one-quarter mile of the bank of the river are withdrawn from all forms of appropriation under the mining laws and mineral leasing laws  2 After inclusion in the system as a Wild segment, ensure prior valid existing rights exist before approving mining claim activities  1 Same as Locatable Minerals  2. After inclusion in the system as a Wild segment, do not issue any mineral leases Ensure prior valid existing rights exist before approving any leasable mineral activities.  1 Same as Locatable Minerals  2. After inclusion as part of the system, do not allow disposal of common variety minerals.  1 Meet Forest-wide Standards and Guidelines until the area is designated a Wild River, then allow only those activities that are in keeping with the management objectives of the river.	
<u>RURAL COMMUNITY AND HUMAN RESOURCES</u>		1 Forest-wide Standards and Guidelines apply See p IV-99 and 100	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>LANDS</u></p>	<p>Special Use Management</p> <p>Right-of-Way Grants for Roads and Trails</p> <p>Federal Energy Regulatory Commission License and Permits</p> <p>Withdrawals, Modifications, and Revocations</p> <p>Landownership Planning, Land Adjustment Planning, and All Adjustment Activities</p> <p>Rights-of-Way Cost-Share Agreements</p>	<p>1 Avoid locating transportation and utility corridors in these areas</p> <p>2 Issue permits when compatible with the goal</p> <p>1 Provide appropriate access to inholders under then existing guidelines</p> <p>1. Section 7 of the Wild and Scenic Rivers Act of Oct 2, 1968 (P L 90-542, 82 Statue 906, as amended), prohibits the licensing of the construction of any project works within a Wild, Scenic, or Recreational River area</p> <p>1 Lands classified as "Wild" segments will be withdrawn from mineral entry under the Wild and Scenic Rivers Act</p> <p>1. Identify those lands needed in National Forest ownership to meet management goals</p> <p>2 Identify those lands which can be left in other ownerships, or would contribute to the proposed management goals in other ownership.</p> <p>3 Use partial takings to maximum extent consistent with management goals</p> <p>1. Forest-wide Standards and Guidelines apply See p IV-101</p>	
<p><u>FACILITIES</u></p>	<p>Road Construction</p> <p>Road Operation</p> <p>FA&amp;O Construction and Reconstruction</p>	<p>1 No roads will be constructed or maintained except that reasonable access will be granted to landlocked inholders under the then prevailing guidelines</p> <p>1. Appropriate road use will be determined by project planning and design</p> <p>1 Not applicable to this prescription</p>	

RESOURCE ELEMENT	MANAGEMENT ACTIVITY	STANDARDS AND GUIDELINES	MANAGEMENT PRACTICE
<p><u>PROTECTION</u></p>	<p>Fire Prevention</p>	<p>1. Implement a low intensity fire prevention program as outlined in the Forest's Fire Management Action Plan</p>	
	<p>Fire Suppression</p>	<p>1 All naturally occurring fires will initially be considered prescribed fires. A timely analysis will be conducted and if the situation does not comply with all elements of the prescription it will be declared a wildfire.</p> <p>2 All wildfires will be suppressed utilizing an appropriate suppression strategy. Suppression tactics which minimize physical disturbance will be used.</p> <p>3 All human caused fires will be considered wildfires</p>	
	<p>Fire Hazard Abatement</p>	<p>1. Naturally occurring fires burning within prescription will be managed in an attempt to replicate the natural fire cycle</p> <p>2 Management ignited fire may be used to replicate the natural fire cycle where ignitions are infrequent or to protect adjacent values</p>	
	<p>Preattack Facilities Development</p>	<p>1 The development of Preattack facilities is not appropriate.</p>	
	<p>Law Enforcement</p>	<p>1. Forest-wide Standards and Guidelines apply See p. IV-103</p>	
	<p>Forest Pest Management</p>	<p>1. Suppress insect and disease outbreaks when necessary to protect river character or adjacent resources.</p> <p>2 Utilize Integrated Pest Management strategies to prevent unacceptable pest damage and meet resource goals</p>	

## CHAPTER V

# IMPLEMENTATION OF THE FOREST PLAN

### A. INTRODUCTION

Implementation of the Wenatchee National Forest Plan requires moving from an existing management program, with a budget and “targets” for accomplishment, to a new management program with a budget, goals, and objectives that provide a different way of addressing the issues and concerns people have voiced about management of the Wenatchee National Forest. This Forest Plan establishes the direction for the Forest for the next ten to fifteen years, when used *in conjunction with Forest Service Manuals and the Pacific Northwest Regional Guide*

This chapter explains how management of the Wenatchee National Forest moves from the Current Direction and Existing Situation to the Proposed Action, all described in the Final Environmental Impact Statement. The following sections describe aspects of implementation that are influenced by previous management activities and objectives, the relationship between project planning and this Forest Plan, the goals of and requirements for monitoring and evaluation, and the circumstances which could require the Plan to be amended or revised.

### B. IMPLEMENTATION DIRECTION

Implementation of the Forest Plan occurs through identification, selection, scheduling and execution of management practices to meet management direction provided in the Plan. Implementation also involves responding to proposals by others for use and/or occupancy of National Forest System lands.

#### Project Planning

Implementation and action plans designed to give implementation guidance for management, protection, and development activities may be developed under the “umbrella” of this Forest Plan. These may become part of the implementation package for the Forest.

Examples of these plans include:

- Forest Trail Plan**
- Wilderness Action Plans**
- Range Allotment Management Plans**
- Fire Management Action Plans**
- Municipal Watershed Plans**
- Land Adjustment Action Plans**
- Corridor Viewshed Plans**
- Tree Improvement Plan**
- Best Management Practices**
- Forest Development Transportation Plan**
- Pacific Crest National Scenic Trail  
Comprehensive Plan**
- Off Road Vehicle Plan**
- Law Enforcement Plan**
- Noxious Weed Action Plan**
- Species Management Guides**

## Project Scheduling

The schedule of proposed projects is contained in Appendix A of this document. This appendix contains activity schedules. These activity schedules represent a pool of possible projects from which implementation schedules (specific, funded projects) are developed in conjunction with funding approvals. Listings of possible projects to meet or accelerate the ten-year management activities schedules are maintained by the unit managers. These listings will routinely change as projects are implemented, or are removed from the listings for other reasons and as new projects take their place. Projects are scheduled in response to the planned outputs of goods and services and the annual budgeting process.

## Consistency with Other Instruments

This Forest Management Plan serves as the single land management plan for the Wenatchee National Forest with the exception of the Alpine Lakes Management Plan, which is incorporated into this Forest Plan by reference. All other land management plans are replaced by the direction in this plan; a list of plans superseded by this plan are:

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### Land Management Plans

- The Chelan Unit Plan 1976
- The Kittitas Unit Plan 1979

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### Ranger District Multiple Use Plans

- Naches Ranger District Multiple Use Plan 11/10/61
- Tieton Ranger District Multiple Use Plan

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### Timber Management Plans

- Wenatchee National Forest 12/16/63 as amended
  - Snoqualmie National Forest 3/3/69 as amended (Naches-Tieton Working Circle)
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If direction in this Plan is found not to agree with the direction contained in the Alpine Lakes Management Plan, the Alpine Lakes Management Plan will take precedence for the Alpine Lakes Management Unit.

All outstanding and future permits, contracts, cooperative agreements and other instruments for occupancy and use of lands included in the Forest Plan will be brought into compliance with this Plan, subject to the valid existing rights of the parties involved; this will be done within three years of the date of this plan.

## Budget Proposals

The Plan's scheduled projects are translated into multi-year program budget proposals that identify needed expenditures. The schedule is used for requesting and allocating the funds needed to carry out the planned management direction. Upon approval of a final budget for the Forest, the annual program of work is finalized and carried out. Accomplishment of the annual program is the incremental implementation of the management direction of the Forest Plan. Outputs and activities in individual years may be significantly different from those shown in Chapter IV depending on final budgets.

## Environmental Analysis

Projects and activities permitted through this Forest Plan are subject to analysis to assure compliance with the National Environmental Policy Act (NEPA), as they are planned for implementation. If the environmental analysis for a project shows that: (1) the management area prescriptions, standards and guidelines can be complied with and (2) little or no environmental effect is expected beyond that identified and documented in the Forest Plan Final EIS, the analysis will probably result in a finding of no significant impact. An analysis file and/or a project file will be available for public review. The analysis will not necessarily be documented in the form of an environmental assessment or environmental impact statement. If the analysis shows neither the activity nor the resulting impacts to be significant, and the activity conforms to the list of categories in the Forest Service Manual, then it can result in a Categorical Exclusion.

The environmental analysis process provides a tie between implementation and monitoring of this Forest Plan. Reviews of Environmental Assessments and Environmental Impact Statements assure that the Standards and Guidelines contained in the Plan are identified in the formulation of alternatives for permitted activities (Implementation Monitoring).

### **C. MONITORING AND EVALUATION PROGRAM**

The Monitoring Plan, Table V-1, identifies the key activities and outputs to be tracked during implementation of this plan to ensure that activities reasonably conform to the Management Area direction, and that outputs satisfy the objectives of the Plan.

It is not intended to spell out all monitoring that is occurring or may occur on the Forest in the future. Currently, many activities are being monitored to comply with administrative and legal responsibilities. However, this monitoring is not essential for the purposes mentioned above. Only those items that are essential and sensitive enough for the purposes of this plan will be addressed in the monitoring plan.

The specific objectives of the Monitoring and Evaluation Program are to determine whether:

1. Planned goals and objectives are achieved.
2. Programs and activities address existing and emerging public issues and management concerns.
3. Management Standards and Guidelines are being followed.
4. Management Standards and Guidelines effectively maintain environmental quality.
5. Workforce, resource and cost assumptions used in projecting output and impacts are correct.
6. Activities on intermingled and adjacent lands managed by other agencies or land owners are affecting management of the Forest.

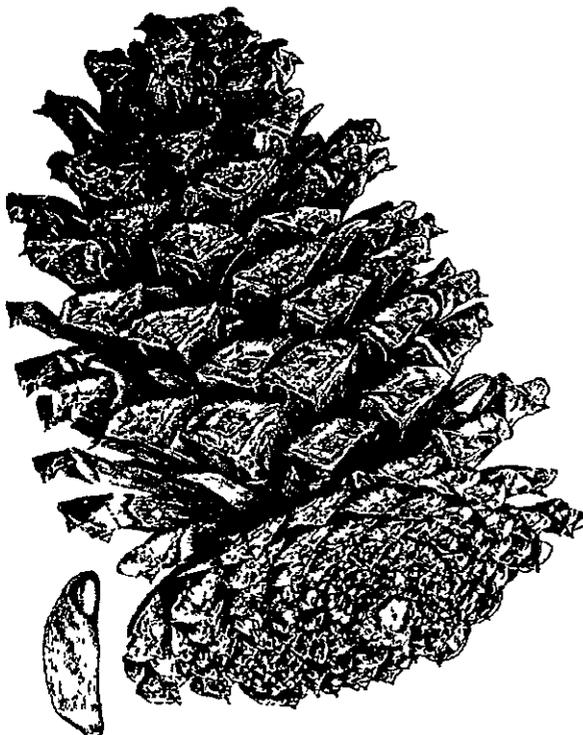
7. Research and information needs beyond that identified in Chapter II of this Plan is needed.
8. The Forest Plan needs to be amended or revised.
9. Intensity of monitoring is commensurate with the risks, costs and values involved in meeting Plan objectives.

Monitoring and evaluation each have a distinctly different purpose and scope. In general, monitoring is designed to gather the data necessary for evaluation. During evaluation, data provided through monitoring are analyzed and interpreted. This process will provide periodic summary data necessary to determine if implementation is within the bounds of the Forest Plan.

At intervals established in this Plan, implementation will be evaluated to determine how well objectives have been met, how accurate effects and cost projections are, and how closely management standards and guidelines have been applied. Based upon this evaluation of the monitoring results, the Interdisciplinary Team shall recommend to the Forest Supervisor such changes in management direction, revisions, or amendments to the Forest Plan as deemed necessary. The action prescribed by the Forest Supervisor will depend upon the significance of the monitoring results. The magnitude of the change from predicted conditions is an important factor, as is the risk associated with the change. Procedures prescribed by the National Environmental Policy Act will be followed by the Forest Supervisor in determining the appropriate action.

The data collected during monitoring will be evaluated using the Decision Flow Diagram shown in Figure V-1. As indicated in the diagram the results of the evaluation lead to recommendations of the following types:

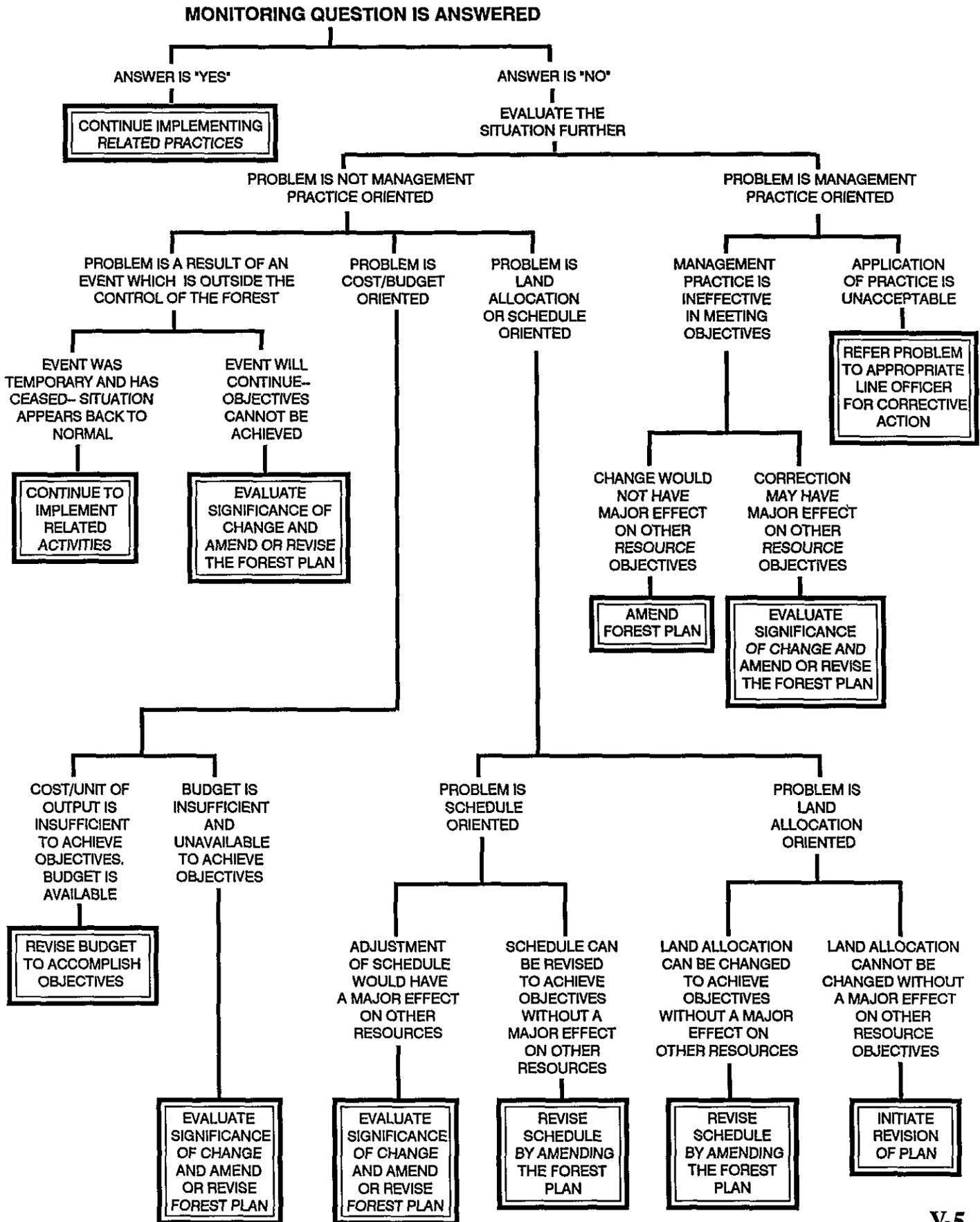
1. Referring problems to the appropriate line officer for action.
2. Modifying the management practice or direction as a plan amendment.
3. Modifying the land allocation as a plan amendment.
4. Revising the schedule of outputs.
5. Revising the cost/unit output.
6. Initiating revision of the Plan.



The document resulting from the use of the Decision Flow diagram constitutes the evaluation report. As applicable, the following will be included in each evaluation report:

1. A quantitative estimate of performance comparing outputs and services with those projected in the Forest Plan.
2. Documentation of measured effects, including any changes in productivity of the land.
3. Unit costs associated with carrying out the planned activities as compared with unit costs estimated during Forest Plan development.
4. Recommendations for changes.
5. A list of needs for evaluation of management systems and for alternative methods of management.
6. A list of additional research needed to support the management of the Forest.
7. Identification of additional monitoring needs to facilitate achievement of the monitoring goals.

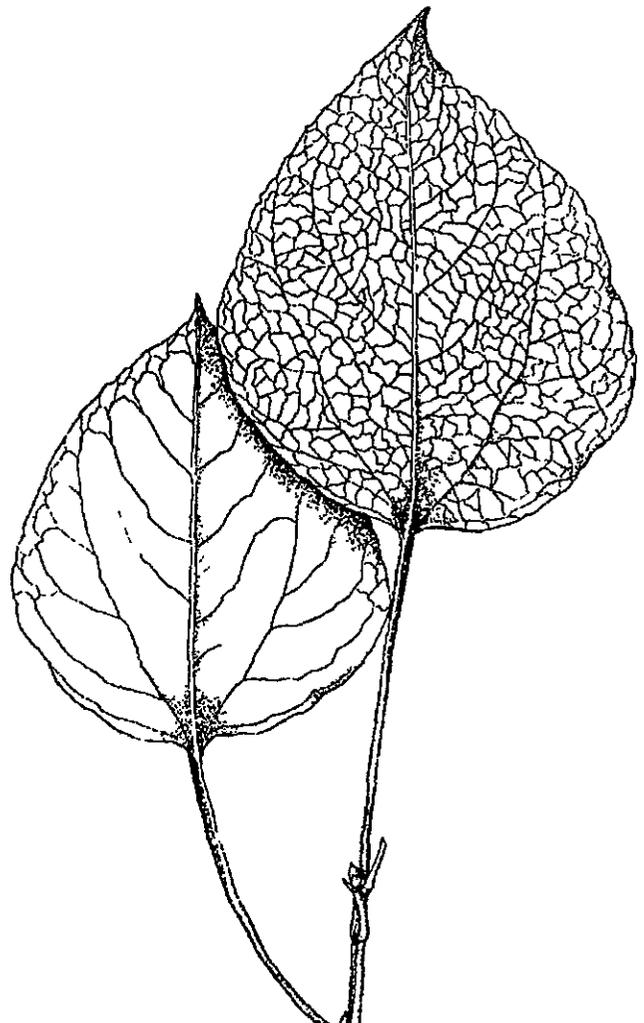
**FIGURE V-1  
DECISION FLOW DIAGRAM**



The Monitoring Plan consists of the following components:

1. **Monitoring Item** - Identification of the item or resource component being monitored.
2. **Actions/Effects** - A specific statement of what will be examined.
3. **Units** - Units to be measured or produced.
4. **Variability Permitted** - The variation from the expected outputs, or activities that is permitted before corrective action or further evaluation is taken.
5. **Suggested Methods** - The specific method on how the monitoring will be accomplished.
6. **Who will Monitor** - The person or persons responsible for evaluating or coordinating the monitoring activity.
7. **Frequency** - The time period showing how often the item will be monitored.
8. **Location of Data** - The file or data storage system in which the monitoring results will be kept.
9. **Annual Cost** - The cost included is the minimum anticipated cost of conducting the monitoring for that item. Amount in ( ) indicates the amount currently being spent on the monitoring item.

Appendix F displays detailed Monitoring Worksheets which are summarized in the following Table V-1.



**TABLE V-1**  
**MONITORING PLAN**

MONITORING ITEM	ACTIONS/EFFECTS TO BE MONITORED	UNITS	VARIABILITY PERMITTED	SUGGESTED METHODS	WHO WILL MONITOR	FREQUENCY AND REPORT	LOCATION OF DATA	ANNUAL COST
Standards & Guidelines, General	Are S&G being implemented?  Do S&G achieve expectations?	All Forest Acres	No deviation  See other worksheets	2 stage Mgt. Team review  Comparisons w/ stage 2	Planning Staff	Annual w/ 5-yr rpt.	S O. Files	\$10,000 (5,000)
ROS Classes & Semi-prim Setting	Compliance with Prescribed ROS Direction	All Forest Acres	Change to a more dev set than Plan	Review random proj. in field	Rec. Staff, DRs.	Annual w/ 5-yr rpt	District & S O. Files	\$ 3,500 (1,000)
Forest trails, inc. ORV	Trails give variety of experiences.  Use w/o impair.  Trails w/ mixed use meet user expectations	Miles of Trail	Miles const. w/in 25% ann & 10% decade  Features on stable to improv. trend    Inc. trend of letters w/ conflict.	Project accomp rpts  Review of  Use Records & Public Comments	Rec. Staff, DRs  Rec.  Staff	Annual w/ 5-yr rpt	Project Files & RIM  District & SO files	\$15,000 (7,500)
Developed Recreation Facilities	Available Facilities meet demand  Site mgt serves public & protect resource	Acres in RE-1  trend	Exceeds 60% of PAOT  Declining sites	Estimate use at sites  Inspect rec	Rec Staff, DRs	Annual w/ 5-yr rpt	RIM Reports	\$18,000 (12,000)
Dispersed Areas	Dispersed sites meet visitor expectations  Sites across ROS	All Forest Acres	Declining trend  ROS not met	Field Review	Rec Staff, DRs	Annual w/ 5-yr rpt	District & S.O. Files	\$12,000 (6,000)
Wild, Scenic and Rec Rivers	Maintain suitability of recom. rivers	All WS-1 WS-2, & WS-3 River Acres	No Loss of eligibility	Project Reviews	Rec. Staff DRs	Annual w/ 5-yr rpt	Project Files	\$ 7,000 (0)
Visual Resource Objectives	Cumulative activities meet desired obj.	Total Forest Acres	Met in all	NEPS & field review Viewshed analysis	Timber, Visual Res. Staff	Annual 5-yr	EAs & files	\$14,000 (5,000)
Wilderness	Maintain LAC Standard	All Wilderness	Various depending on LAC	Field Monitoring & Photopoint	Rec. Staff	Annually w/ 5-yr rpt	District and S.O. Files	\$33,000 (10,000)
Protection of Cultural Resources	Protect characteristics  Find reasonably locatable sites	Number of Sites	10% damaged  Significant find during project	Field inspect  Proj. Surv.	Rec.Staff	Annual  Ongoing	Project Files	\$10,000 (3,000)
Rehab of Cultural sites	Rehab & stable sites	Number of Sites	Significant site damaged	Field review	Rec Staff	Annual	SO files	\$ 3,750 (0)

**TABLE V-1 (continued)**

**MONITORING PLAN**

MONITORING ITEM	ACTIONS/EFFECTS TO BE MONITORED	UNITS	VARIABILITY PERMITTED	SUGGESTED METHODS	WHO WILL MONITOR	FREQUENCY AND REPORT	LOCATION OF DATA	ANNUAL COST
Coord with Indian Tribes	Rights of Tribes protected  Projects in area of concern coordinated	Total Forest Acres	No violation  See other wksheet, i.e. fish, wildf	NEPA review  Evaluate outputs of resource w/ Tribe	Forest Sup, DRs, Plan Staff	Annual w/ 5-yr rpt	S O Files	\$15,000 (5,000)
Sensitive Plants	Populations maintained or increasing	All Forest Acres	Downward trend	Monitor Plots	R,W,F & W Staff, DRs	As activity occurs or at 5-yr	District & S.O. Files	\$ 5,500 yr 1-5, \$ 4,800 (4,000)
Biodiversity	Diversity moving as expected  Model is used	All Forest Acres	Varies by Plant/Animal Community	Diversity index  NEPA review	R,W,F & W Staff DRs	Annual w/ 5-yr rpt  Annual	TRI or GIS Files	\$ 3,000 (0)
Old Growth Ecosystems	Old growth retained as expected	All where OG to be retained	10%	Maintain acre by Mgt Area	D R , TM R ,W,F & W Staff	5-yr intervals	GIS	\$10,000 (3,000)
Old Growth & Mature Habitat Indicators. Spotted Owl, Pileated Woodpecker, Marten & 3-toed Woodpecker	Enough habitat to meet 1st dec (owls only)  Netwrk sites occupied  Areas in Plan protected	Where suit habitat found  Where SOHAs & MRs are established	Forest total w/in 15%  Trend stable to inc.  0% for MRs	GIS  R-6 protocol for owl, field review for others	R,W,F & W Staff & DRs	Annual w/ 5-yr rpt	GIS  SO & RD files  GIS	\$ 4,000 (3,000)  \$85,000 owls, (85,000) pileated (0) \$10,600 \$ 4,500 marten (0)
Goat	Each subpop maintained	Where habitat found	No Downward trend	State estimates	R,W,F & W Staff & DRs	Annual w/ 5-yr rpt	SO & RD files	\$ 2,000 (1,000)
Big Game Indicators (deer & elk)	Populations maintained  Habitat capability maintained	Total Forest Acres	20% w/in 5-yr period  20% below optimum	State census  Habitat model, GIS	R,W,F & W Staff & DRs	5-yr interval  As projects occur	S O Files  RD files	\$ 6,000 (0)
Primary Cavity Excavators	Is habitat retained  Is habitat used  Down trees provided	Total Forest Acres	Nearing amt in Plan  50% of expected  Downward trend	Field review  Sample transects	R,W,F & W Staff & DRs	Annual w/ 5-yr rpt	SO&RD files	\$10,000 (3,000)
Hawk & Owl Nest Sites	Protect Nests	All Forest Acres	Previously unknown nest destroyed	Field Review	R,W,F & W Staff & DRs	Ongoing w/ 5-yr rpt	District & S O Files	\$ 2,000 (1,000)
Beaver & Ruffed Grouse	Populations Maintained	EW-2 Acres	20%	Field Review & Sample Transects	R,W,F & W Staff & DRs	Annual w/ 5-yr rpt	District & S O Files	\$3,500 (0)

**TABLE V-1 (continued)**

**MONITORING PLAN**

MONITORING ITEM	ACTIONS/EFFECTS TO BE MONITORED	UNITS	VARIABILITY PERMITTED	SUGGESTED METHODS	WHO WILL MONITOR	FREQUENCY AND REPORT	LOCATION OF DATA	ANNUAL COST
Bald Eagle	Nests w/ young  Nest, roost, perch sites	Where occur	2 yrs w/ no young  No loss of managed sites	Interagency survey  Field review	R,W,F & W Staff & DRs	Annual w/ 5-yr rpt	SO & RD files	\$ 5,000 (3,000)
Grizzly Bear	Guides followed for NCGBRA	Forest-wide	Project in noncompliance	NEPA/field review	R,W,F & W Staff	Annual	SO files	\$ 1,000 (1,000)
Peregrine Falcon	Recovery sites maintained  Sites used	Where find habitat	No loss  Occupancy for Wen = E Cascad	Field review  Site visit	R,W,F & W Staff & DRs	Annual w/ 5-yr rpt	SO & RD files	\$ 3,000 (500)
Gray Wolf	Habitat capability increase	Forest-wide	No downward trend	GIS mapping	R,W,F & W Staff	Annual w/ 5-yr rpt	SO files	\$ 1,000 (0)
Habitat for Candidate Species (various)	Habitat trend increasing	Forest-wide	No downward trend	GIS mapping	R,W,F & W Staff	Annual w/ 5-yr rpt	SO files	\$ 6,000 (0)
Timber Offered	Acres by Harvest Method Achieve ASQ & Achieve TSPQ	All Suitable Acres & Harvest Volume (cf)	25% annual 5% decade	STARS and Cut and Sold Report	Timber Staff, DRs	Annual w/ rpt yr 5&8 each decade	District and S.O. Files	\$ 3,500 (3,500)
Timber Harvest Units	Manage Size of Openings Creat by TM Harvest	Total Sched & Non Sched Acres	0% 10%	Field Review	Timber Staff, DRs	Annual w/ 5-yr rpt	District and S.O. Files	\$ 5,000 (4,000)
Timber Harvest	Harvest at time for best growth  Vol removed = vol sold	Total Harvest Acres	±5% of CMAI  Removed ± 10% sold	Review Rx  Cut and sold reports	Timber Staff, DRs	Annual w/ 5-yr rpt	S.O Files	\$12,000 (6,000)
Silvicult Practices	Acres of silv treatment  Rx meet obj  PROGNOSIS accurate	Total Sched & Non Sched Acres	10% Planned  10% acres not meet obj  10% diff growth/predict	Review Data vs Accom Reports  Modified stand exam	Timber Staff & DRs  Timber Staff & DRs	Annual w/ Staff  When trees are saps & yr 8 each decade	S O Files 5-yr rpt	\$20,000 (6,000)
Reforestation	Stock w/in time  # & species as Rx	All acres harvested	10% over 3 yr  w/in 10% of Rx	Rpt for cut & reforest  Field surveys	Timber Staff, DRs	Annual  Yrs 1 & 3 after plant	District Files	\$100,000 (100,000)
Non Suit. TM Lands	Unsuit lands in Plan now suit  Suit notsuit accurate	All areas where harv OK	± 10% Error	Field Review Projects & Stand Exams, NEPA	Timber Staff, DRs	Annual w/ rpt yr 10	District and S.O. File, GIS	\$12,000 (0)

**TABLE V-1 (continued)**

**MONITORING PLAN**

MONITORING ITEM	ACTIONS/EFFECTS TO BE MONITORED	UNITS	VARIABILITY PERMITTED	SUGGESTED METHODS	WHO WILL MONITOR	FREQUENCY AND REPORT	LOCATION OF DATA	ANNUAL COST
Soil Productivity	Assure maint. of soil productivity	All Forest Acres	20% of area disturbed	Field Review and Surveys	R,W,F & W Staff	Variable for each method	S O. Files	\$19,500 (0)
Fish Population Trends	Trends stable to improving	Fish Numbers	No downward trends	# from WDW & WDG, trends from index	R,W,F & W Staff	Annual w/ 5-yr rpt	District & S.O Files	\$ 6,000 (1,000)
Riparian Water & Fish	Achieve expected conditions	EW-2 Acres	Nonattainment of S&G	Field Review of Projects and EA'S	R,W,F & W Staff	Annual w/ 5-yr rpt	District & S O Files	\$26,000 (5,000)
Cumulative Effects on Watershed & Fish	Activities (FS, & other) scheduled to min cum. effects	National Forest & Other Acres	Effects outside of predicted	Evaluation of Projects & Monitoring	R,W,F & W Staff	Annual w/ 5-yr rpt	District and S.O. Files	\$ 6,000 (1,000)
Watershed Condition	What are long-term trends	All Forest Acres	Various	Various	R,W,F & W Staff	Annual w/ 5-yr rpt start yr 10	S O Files	\$28,500-\$53,500 (0)
Range Outputs	AUMs being achieved	Where graze allowed	10% change From permit	Review rpt actual use	R,W,F & W Staff	Annual w/ 5-yr rpt	Annual use report	\$ 3,000 (2,000)
Forage Utilization	Achieve forage utilization	Where graze allowed	10% increase over Rx	Field review 30% allots	R,W,F & W Staff	Annual w/ 5-yr rpt	Allotment Files	\$ 5,000 (5,000)
Range Forage Condition	Trend stable to improving  Unsatisfactory areas improve	Where graze allowed	10% increase in down trend  No move to up trend	Transects, photo points, field obs	R,W,F & W Staff	Annual w/ 5-yr rpt	Allotment Files	\$20,000 (10,000)
Range Improvements	Maint. of imp. for intended use	Where graze allowed	10% not functioning	Allotment inspection records	R,W,F & W Staff	Annual w/ 5-yr rpt	Allotment Files	\$ 6,000 (3,000)
Road Miles & Maint.	Trans system serves use  Miles const. as planned	All areas where rds OK	No variation  +25% annual, +10% decade	ID field review  STARS, TSPIRS, etc	Eng. Staff, DRs	Annual w/ 5-yr rpt	District & S.O. Files	\$ 8,000 (6,000)
Insect and Disease Control	I&D below damaging level	Forest-wide	Increase since last survey	Review maps & field survey	Timber Staff	5 Years 10 Years	District and S.O. Files	\$ 5,000 (1,000)
Fire Management	Implemented strategies protect OK  Costs in line w/ values	Forest-wide	15% decr outputs due to fire  20% over in 2 years	Compare plan w/ outputs  Review costs w/ loss	Fire Staff, DRs	Annual w/ 5-yr rpt	District & S.O. Files	\$ 7,000 (3,500)
Prescribed Fire Use	Acres treated meet expectation  Fuel loads not over natural	Forest-wide	+25% annual, 10% decade  +25% natural	Review plans  Field inventory	Fire Staff DRs	Annual w/ 5-yr rpt	District and S.O Files	\$30,000 (10,000)

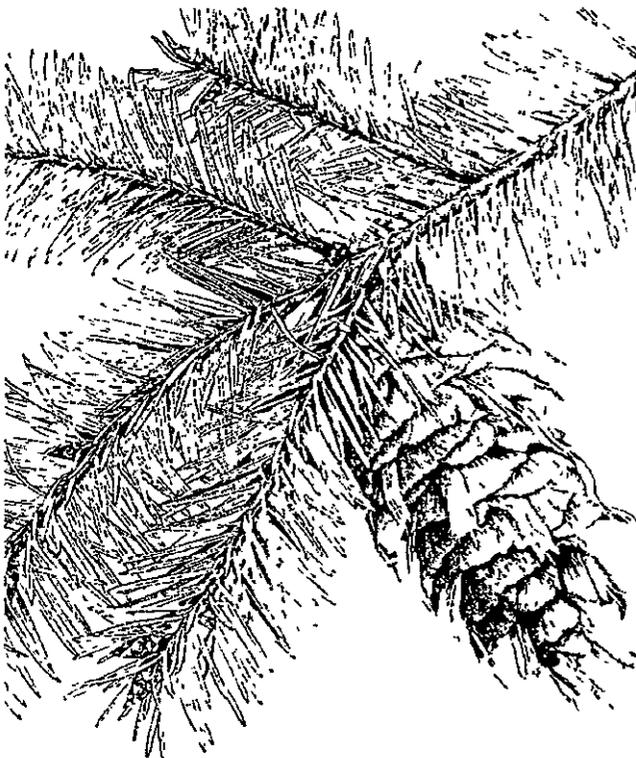
**TABLE V-1 (continued)**

**MONITORING PLAN**

MONITORING ITEM	ACTIONS/EFFECTS TO BE MONITORED	UNITS	VARIABILITY PERMITTED	SUGGESTED METHODS	WHO WILL MONITOR	FREQUENCY AND REPORT	LOCATION OF DATA	ANNUAL COST
Air Resource Management	Air impacts considered  Comply w/ Clean Air Act	Forest-wide	Project does not allow  Violation	Review EA'S  Review smoke mgt document	Fire Staff, DRs	Annual w/ 5-yr rpt	District and S O Files	\$10,000 (3,000)
Community Effects	Changes in local income	Dollars	± 25% Annual	U.S. Census State Publications, County & Local Agency Reports	Planning Staff	Annual w/ 5 yr Report	S O. Files	\$5,000 (2,500)
	Changes in local population	Persons	Subjective	(Same as above)	Planning Staff	Annual w/ 5 yr Report	S O/ Files	\$5,000 (2,500)
	Changes in local employment patterns	Persons by industry or occupation	Subjective	(Same as above)	Planning Staff	Annual w/ 5 yr Report	S.O.Files	\$5,000 (2,500)
	Changes in Payments to Counties	Dollars	± 25% Annual	Review Payments to Counties Reports	Planning Staff	Annual w/ 5 yr Report	S.O.Files	\$5,000 (2,500)
	Changes in lifestyles, attitudes, beliefs in values	Various	Subjective	Interviews	Planning Staff	Annual w/ 5 yr Report	S O Files	\$5,000 (2,500)
	Changes in Forest contribution to area forest products industries	MMCF /yr percent industry distribution	Subjective	Tracking of raw material flow to mills; industry mix	Planning Staff	Annual w/ 5 yr Report	S.O. Files	\$5,000 (2,500)
Resource Budgets	Budgets OK for achieve outputs	Forest-wide	± 20% of outputs	Compare plan w/ actual	Planning Staff	Annual w/ rpt 3,5,7	S.O Files	\$ 3,500 (0)
Costs and Values	Costs as in Plan	Forest-wide	±25% Var. from planned	Review of PAMARS	Planning Staff	Annual w/ 5-yr rpt	S.O. Files	\$ 3,500 (0)
	Current values as in Plan			Various				

## **D. AMENDMENT AND REVISION**

The Forest Plan incorporates legal mandates, professional judgement and the public's stated concerns into a future vision of the Forest. It charts a path for getting there by developing management goals and objectives and translating them into management direction in the form of standards and guidelines for management areas on the Forest. National Forest planning is a dynamic process, and the products -- Forest Plans -- are similarly dynamic. Forest Plans can and should be modified if conditions warrant. As management goals are applied on the ground or as new information is learned about resources, the Plan's goals and objectives, or activities the goals generate, may no longer be appropriate. In such instances, activities may be tailored to fit the resource, or planning objectives as stated in the Plan may be amended. Plans do not apply direction in site-specific management activities. It would be unrealistic to try to identify, analyze and schedule the numerous diverse projects or activities that occur on a National Forest. Instead, this type of site-specific planning occurs at the project-level planning stage, such as allotment management planning.



The Forest Supervisor may amend the Forest Plan. Based on an analysis of the objectives, standards, and other contents of the Forest Plan, the Forest Supervisor shall determine whether a proposed amendment would result in a significant change in the Plan. If the change resulting from the proposed amendment is determined to be significant, the Forest Supervisor shall follow the same procedure as that required for development and approval of a Forest Plan. If the change resulting from the amendment is determined not to be significant for the purposes of the planning process, the Forest Supervisor may implement the amendment following appropriate public notification and satisfactory completion of NEPA procedures.

The Forest Plan shall ordinarily be revised on a ten-year cycle or at least every 15 years. It also may be revised whenever the Forest Supervisor determines that conditions or demands in the area covered by the Plan have changed significantly or when changes in Resource Planning Act policies, goals, or objectives would have a significant effect on Forest level programs. In the monitoring and evaluation process, the interdisciplinary team may recommend a revision of the Forest Plan at any time. Revisions are not effective until considered and approved in accordance with the requirements for the development and approval of the Forest Plan. The Forest Supervisor shall review the conditions on the land covered by the Plan at least every five years to determine whether conditions or demands of the public have changed significantly.

# GLOSSARY



ACRE EQUIVALENT - When applied to habitat improvement or improvement structures this term reflects overall habitat benefits derived. It reflects the zone of influence of the habitat improvement for the target species. For example, a single water development for upland game birds occupies very little space but has an acre equivalent of 160 because it serves 160 acres of bird habitat. A single water structure for big game has a value of 640 because it has a larger zone of influence for the more mobile big game animals.

ACRE-FOOT (AF) - A water measurement term equal to the amount of water that would cover an area of one acre to a depth of one foot (43,560 cubic feet).

ACTIVITY - Actions, measures, or treatments undertaken which directly or indirectly produce, enhance, or maintain forest outputs and rangeland outputs, or achieve administrative and environmental quality objectives. Forest Service activity definitions, codes, and units of measure are contained in the Management Information Handbook (FSM 1309.11).

AIRSHED - A geographical area that, because of topography, meteorology, and climate, shares the same air

ALLOCATED FUNDS - Funds from sources other than Congressionally appropriated funds. Allocated funds include the Senior Community Service Program, brush disposal (BD), Knutson-Vandenberg cooperative deposits (K-V), and State of Washington funds for trails from the Interagency Committee for Outdoor Recreation

ALLOWABLE SALE QUANTITY (ASQ) - The quantity of timber that may be sold from the area of suitable land covered by the Forest Plan for a time period specified by the plan. This quantity is usually expressed on an annual basis as the "average annual allowable sale quantity." (36 CFR 219.3)

ALTERNATIVE - One of several policies, plans, or projects proposed for decision making

AMENITY - An object, feature, quality, or experience that gives pleasure or is pleasing to the mind or senses. Amenity value is typically used in land use planning to describe those resource properties for which market values (or proxy values) are not or cannot be established.

AMS - An abbreviation of Analysis of the Management Situation.

ANADROMOUS FISH - Those species of fish that mature in the ocean and migrate into streams to spawn. Salmon, steelhead, and shad are examples.

ANALYSIS AREA - A delineated area of land subject to analysis of (1) responses to proposed management practices in the production, enhancement, or maintenance of forest and rangeland outputs and environmental quality objectives and (2) economic and social impacts.

ANALYSIS OF THE MANAGEMENT SITUATION (AMS) - A determination of the ability of the planning area to supply goods and services in response to society's demand for those goods and services.

ANIMAL UNIT MONTH (AUM) - The quantity of forage required by one mature cow (1,000 pounds), or the equivalent for one month, based upon average daily forage consumption of 26 pounds of dry matter per day (800 pounds/month).

APPROPRIATE SUPPRESSION RESPONSE - The planned strategy for suppression action (in terms of kind, amount, and timing) on a wildfire which most efficiently meets fire management direction under current and expected burning conditions. It may range in objective from prompt control to one of containment or confinement.

**APPROPRIATED FUNDS** - Funds from the U. S. Treasury, which Congress has authorized the Forest Service to obligate. This is the sum of operational, capital investment, and backlog costs.

**AQUATIC ECOSYSTEMS** - Streams, channels, lakes, marshes or ponds, and the plant and animal communities they support.

**ASQ** - An abbreviation of Allowable Sale Quantity.

**AREA OF SPECIES MANAGEMENT GUIDES** - A contiguous area where management direction is the same.

**ARTERIAL ROADS** - See Roads.

**AUM'S** - An abbreviation of Animal Unit Months.



**BACKGROUND** - In visual management terminology, refers to the visible terrain beyond the foreground and middleground where individual trees are not visible but are blended into the total fabric of the forest stand (also see Foreground and Middleground).

**BASAL AREA** - The cross-sectional area of a stand of trees measured at breast height. The area is expressed in square feet.

**BASE TIMBER SALE SCHEDULE** - A Timber Sale Schedule formulated on the basis that the quantity of timber planned for sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade, and this planned sale and harvest for any decade is not greater than long-term sustained yield capacity. (36 CFR 219.3).

**BASIN** - The largest regional hydrologic unit for the Wenatchee National Forest (Columbia River Basin)

**BENCHMARK LEVELS** - The outputs and costs for managing the Forest at certain levels of management so that a comparison could be made on costs, values, and effects.

**BENEFIT** - (Value) Inclusive terms used to quantify the results of a proposed activity, program or project expressed in monetary or nonmonetary terms.

**BENEFIT-COST RATIO** - Measure of economic efficiency computed by dividing total discounted primary benefits by total discounted economic costs.

**BEST MANAGEMENT PRACTICES (BMP's)** - A practice or combination of practices determined by the state that are the most effective and practical (including technological, economic and institutional considerations) means of preventing or reducing the amount of pollution generated by non-point sources to a level compatible with water quality goals.

**BF** - An abbreviation of board feet.

**BIG GAME** - Those species of large mammals normally managed for sport hunting.

**BIOLOGICAL CONTROL** - A method to control wildlife or insect populations and noxious weeds or tree diseases through the use of applied biology.

**BIOLOGICAL GROWTH POTENTIAL** - The average net growth attainable in a fully stocked natural forest stand. (36 CFR 2193)

**BIOLOGICAL POTENTIAL** - The maximum production of a selected organism that can be attained under optimum management.

**BIOMASS** - The total quantity (at a given time) of living organisms of one or more species per unit of space (species biomass), or the total quantity of all the species in a biotic community (community biomass).

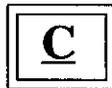
**BOARD FOOT** - The amount of wood equivalent to a piece of wood one foot by one foot by one inch thick.

**BRITISH THERMAL UNIT (BTU)** - The amount of heat required to raise the temperature of one pound of water one degree Fahrenheit.

**BROADCAST BURN** - Allowing a prescribed fire to burn over a designated area within well-defined boundaries for a reduction of fuel hazard or as a silvicultural treatment, or both.

**BRUSH** - A growth of shrubs or small trees usually of a type undesirable to livestock or timber management.

**BUREAU OF LAND MANAGEMENT (BLM)** - An agency within the Department of the Interior with land management responsibility for the Public Domain lands.



**CAPABILITY** - The potential of an area of land to produce resources, supply goods and services, and allow resource uses under an assumed set of management practices at a given level of management intensity. Capability depends upon current conditions and site conditions such as climate, slope, landform, soils and geology, as well as the application of management practices, such as silviculture or protection from fire, insects, and disease. (36 CFR 219.3)

**CEQ** - An abbreviation of Council on Environmental Quality.

**CF** - An abbreviation of cubic feet.

**CHARGEABLE TIMBER VOLUME** - The timber removed from regulated forest land that contributes to meeting the allowable sale quantity.

**CLASS I (II & III) STREAMS** - See Stream Class.

**CLEARCUTTING** - The harvesting in one cut of all trees in an area for the purpose of creating a new, even-aged stand. The area harvested may be a patch, stand, or strip large enough to be mapped or recorded as a separate age class in planning for sustained yield.

**CLIMAX** - The culminating stage in plant succession for a given site where the vegetation has reached a highly stable condition.

**CLIMAX SPECIES** - Those species that dominate the forest stand in either numbers per unit area or biomass at climax.

**CODE OF FEDERAL REGULATIONS (CFR)** - The listing of various regulations pertaining to management and administration of the National Forest

**COLLECTOR ROAD SYSTEM** - See Roads.

**COMMERCIAL FOREST LAND (CFL)** - Forest land that is producing or is capable of producing crops of industrial wood and (a) has not been withdrawn from timber management by Congress, the Secretary, or the Chief; (b) existing technology and knowledge is available to ensure timber production without irreversible damage to soils, productivity, or watershed conditions; and (c) existing technology and knowledge, as reflected in current research and experience, provides reasonable assurance that adequate restocking of young trees can be attained within 5 years after final harvest.

**COMMERCIAL THINNING** - Cutting by mean of sales of products (poles, posts, pulpwood, etc.) in immature forest stands to improve the quality and growth of the remaining stand.

**COMMODITY** - A transportable resource product with commercial value; all resource products which are articles of commerce.

**COMPACTION** - The packing together of soil particles by forces at the soil surface, resulting in increased soil density.

**CONCERN** - A point, matter, or question raised by management that must be addressed in the planning process.

**CONFINE** - To restrict the fire spread within a predetermined area principally by use of natural or preconstructed barriers or environmental conditions. Suppression action may be minimal and limited to surveillance under appropriate conditions.

**CONGRESSIONALLY CLASSIFIED AND DESIGNATED AREAS** - Areas that require Congressional enactment for their establishment, such as National Wilderness Areas, National Wild, Scenic, and Recreational Rivers, and National Recreation Areas.

**CONIFER** - A group of cone-bearing trees, mostly evergreen, such as pine, spruce, fir, etc.

**CONSUMPTIVE USE** - Those uses of a resource that reduce its supply.

**CONTAIN** - To surround a fire, and any spot fires therefrom, with control line as needed, which can reasonably be expected to check the fire's spread under prevailing and predicted conditions. The normal suppression tactic is indirect attack, allowing the fire to burn to human-made or natural barriers with little or no mop-up.

**CONTROL** - To complete the control line around a fire and around any spot fires therefrom and any interior islands of vegetation to be saved. Firefighters will also burn out any unburned area adjacent to the fire side of the control line, and cool down all hot spots that are immediate threats to the control line until the line can reasonably be expected to hold under foreseeable conditions. The normal tactic is direct attack on the fire, if possible, and mop-up to extinguish all fire.

**CORE AREA** - (As related to spotted owl.) An area encompassing at least 300 contiguous acres of old growth forest suitable for nesting and reproduction. The area consists of a portion of the territory required by a pair of owls, the nest site, and principal roost areas.

**CORRIDOR** - A linear strip of land identified for the present or future location of transportation or utility rights-of-way. (36 CFR 219.3)

**COST EFFICIENCY** - The usefulness of specified inputs (costs) to produce specified outputs (benefits). In measuring cost efficiency, some outputs, including environmental, economic, or social impacts, are not assigned monetary values but are achieved at specified levels in the least cost manner. Cost efficiency is usually measured using present net value, although use of benefit-cost ratios and rates of return may be appropriate. (36 CFR 219.3)

**COST, CAPITAL INVESTMENT** - The cost of man made structures, facilities, or improvements in natural resources used as inputs in production processes to produce outputs over one or more planning periods.

**COST-EFFECTIVE** - Achieving specified outputs or objectives under given conditions for the least cost.

**COST, FIXED** - A cost that is committed for the time horizon of planning or the decision being considered. Fixed costs include fixed ownership requirements, fixed protection, short-term maintenance and long-term planning and inventory costs.

**COST, OPERATIONAL** - Costs associated with administering and maintaining National Forest facilities and resource programs. This includes appropriated funds only.

**COST, VARIABLE** - A cost that varies with the level of controlled outputs in the time horizon covered by the planning period or decisions being considered.

**COUNCIL ON ENVIRONMENTAL QUALITY (CEQ)** - An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews Federal programs for their effect on the environment, conducts environmental studies, and advises the President on environmental matters

**COVER/FORAGE RATIO** - The mixture of cover and forage areas on a unit of land expressed as a ratio (e.g. deer summer range goal may be a 60/40 ratio).

**CREATED OPENING** - Created openings are openings in the Forest created by the silvicultural practices of shelterwood regeneration cutting at the final harvest, clearcutting, seed tree cutting, or group selection cutting.

**CRITICAL HABITAT** - For threatened or endangered species, the specific areas within the geographical area occupied by the species (at the time it is listed, in accordance with provisions of Section 4 of the Endangered Species Act) on which are found those physical or biological features essential to the conservation of the species. This habitat may require special management considerations or protecting. Protection may also be required for additional habitat areas outside the geographical area occupied by the species at the time it is listed based upon a determination of the Secretary of the Interior that such areas are essential for the conservation of the species.

**CRITICAL MINERALS** - Minerals essential to the national defense, but whose procurement, while difficult in case of war, is less serious than those of Strategic Minerals.

**CUBIC FOOT (CF)** - A unit of measure with the dimensions of one foot by one foot by one foot thick

**CULMINATION OF MEAN ANNUAL INCREMENT (CMAI)** - The point where the mean annual growth of a timber stand ceases to increase prior to decline. Mean annual increment is expressed in cubic feet measure and is based upon expected growth according to the management intensities and utilization standards assumed in accordance with 36 CFR 219.16.

**CULTURAL RESOURCES** - Any site, structure, or object, or group of sites, structures, or objects that have been made, modified, or used by man in the past.

**CUMULATIVE EFFECTS** - The combined effects of two or more management activities. The effects may be related to the number of individual activities, or to the number of repeated activities on the same piece of ground. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.



**DECISION CRITERIA** - Essentially the rules or standards used to evaluate alternatives. They are measurements or indicators that are designed to assist a decision maker in identifying a preferred choice from an array of possible alternatives.

**DEFERRED ROTATION** - Any grazing system which provides for a systematic rotation of the delay or discontinuance of livestock grazing on an area to provide for plant reproduction establishment or restoration of vigor

**DEMAND** - The amount of output that users are willing to take at specific price, time period, and conditions of sale.

**DEPARTURE** - A schedule which deviates from the principle of nondeclining flow of timber harvest by exhibiting an increase in cutting levels above sustainable levels followed by a planned decrease below sustainable levels in the timber sale and harvest schedule at some time in the future.

DESIGNATED AREA (AIR QUALITY) - Those areas delineated in the Oregon and Washington Smoke Management Plans as principal population centers of air quality concern.

DESTINATION RESORT - A recreation resort designed for multi-day use in contrast to single day use

DEVELOPED RECREATION SITE - Distinctly defined area where facilities are provided for concentrated public use, e.g. campgrounds, picnic areas, boating sites, and ski areas.

DIAMETER BREAST HIGH (DBH) - The diameter of a standing tree at a point 4 feet, 6 inches from ground level.

DISCOUNT RATE - An interest rate that represents the cost or time value of money in determining the present value of future costs and benefits.

DISCOUNT RATE, REAL - A discount rate adjusted to exclude the effects of inflation

DISCOUNTING - An adjustment, using a discount rate, for the value of money over time so that costs and benefits occurring in the future are reduced to a common time, usually the present, for comparison.

DISPERSED RECREATION - Outdoor recreation that takes place outside developed recreation sites or the Wilderness.

DIVERSITY - The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan. (36 CFR 219.3)

DRAINAGE PATTERN - The configuration or arrangement of streams within a drainage basin or other area.



ECONOMIC EFFICIENCY - The usefulness of inputs (costs) to produce outputs (benefits) and effects when all costs and benefits that can be identified and valued are included in the computations. Economic efficiency is usually measured using present net value, though use of benefit/cost ratios and rates of return may sometimes be appropriate

ECONOMIC IMPACT - The positive or negative change in economic conditions, including distribution and stability of employment and income in affected local, regional, and national economies, which directly or indirectly results from an activity, project or program.

ECOSYSTEM - An interacting system of organisms considered together with their environment; for example, marsh, watershed, and lake ecosystems.

EDGE - The boundary between two or more elements of the environment; e.g. field and woodland.

EDGE CONTRAST - A qualitative measure of the difference in structure of two adjacent vegetated areas; for example, low, medium, or high edge contrast.

EFFECTS - Environmental consequences as a result of a proposed action. Included are direct effects, which are caused by the action and occur at the same time and place, and indirect effects, which are caused by the action and are later in time or further removed in distance, but which are still reasonably foreseeable. Indirect effects may include population growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

The terms "Effects" and "Impacts" as used in this statement are synonymous. Effects may be ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems),

aesthetic quality, historic, cultural, economic, social, or health related, whether direct, indirect, or cumulative Effects resulting from actions may have both beneficial and detrimental aspects, even if on balance the agency believes that the overall effects will be beneficial (40 CFR 1508 8).

ENDANGERED SPECIES - Any species of animal or plant which is in danger of extinction throughout all or a significant portion of its range. An endangered species must be designated by the Secretary of Interior as endangered in accordance with the Endangered Species Act of 1973.

ENVIRONMENTAL ANALYSIS - An analysis of alternative actions and their predictable short and long-term environmental effects, incorporating the physical, biological economic, social, and environmental design factors and their interactions.

ENVIRONMENTAL ASSESSMENT - A concise public document required by the regulations implementing the National Environmental Policy Act.

EROSION - The wearing away or detachment of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitation creep.

EROSION (ACCELERATED) - Erosion much more rapid than normal, primarily as a result of the influence or the activities of man.

EROSION (NATURAL) - Wearing away of the earth's surface by water, ice, or other natural agents under natural environmental conditions of climate, vegetation, etc., undisturbed by human activity.

ESCAPED FIRE - A fire which has exceeded, or is anticipated to exceed, preplanned initial action capabilities or the fire management direction

ESCAPE COVER - Usually vegetation dense enough to hide an animal; used by animals to escape from potential enemies.

ESSENTIAL HABITAT - Areas designated by the Forest Service Regional Forester that possess the same characteristics of critical habitat as those designated by the Secretary of the Interior or Commerce

EVEN-AGED MANAGEMENT - The application of a combination of actions that results in the creation of forest stands composed of trees of essentially the same age Managed even-aged forests are characterized by a distribution of stands of varying ages (and, therefore, tree sizes throughout the forest area). The difference in age between trees forming the main canopy level of a stand usually does not exceed 20 percent of the age of the stand at harvest rotation age. Regeneration in a particular stand is obtained in a short period at or near the time that a stand has reached the desired age or size for regeneration and is harvested. Clearcut, shelterwood, or seed tree cutting methods produce even-aged stands. (36 CFR 219.3)

EVEN-FLOW - Maintaining a relatively constant supply of timber from decade to decade.

EXCLUSION AREA - An area having a statutory prohibition to rights-of-way for linear facilities or corridor designation.

EXPECTED BURNED ACREAGE - The expected annual number of acres burned by fire size class and intensity level for a given program option or budget level.

EXTENDED SHELTERWOOD - This is a variation of the shelterwood system design to provide for other resources such as wildlife or scenery considerations. The term extended is used to denote the retention of the old stand for a longer period than is necessary or, in many cases, desirable for maximum growth of the new stand.

EXTIRPATION - Extermination.



**FINAL REMOVAL** - The removal of the last seed bearers or shelter trees after regeneration is established under a shelterwood system.

**FIRE MANAGEMENT ANALYSIS ZONE** - The geographically delineated areas into which the planning unit is divided for the purpose of fire management analysis. The delineation is based upon common fire-behavior characteristics which is the "corner stone" for fire planning and evaluation of fire effects.

**FIRE MANAGEMENT DIRECTION** - The direction provided by an interdisciplinary team for each separate management area on the Forest. It includes guides by management area for long-term maximum burn acreages, specifying fire size and intensity, which would not adversely affect attainment of resource targets or outputs. In addition, it provides guidelines on desired residue profiles and the use of fire to meet resource prescriptions.

**FIRE PROGRAM OPTION** - A given program mix funded at a given program level. Options are developed in response to specific fire management direction established for the Forest Plan. The objective is to identify the most cost-efficient option meeting resource protection and management objectives.

**FLOOD PLAINS** - Lowland and relatively flat areas adjoining inland and coastal water including, as a minimum, that area subject to one percent or greater chance of flooding in any given year

**FORAGE** - All browse and non woody plants available to livestock or wildlife for grazing or harvestable for feed.

**FORB** - Any herb other than grass.

**FORDRY** - That forested ecotype where the climax conifer species is Douglas-fir or ponderosa pine.

**FOREGROUND** - A term used in visual (scenery) management to describe the stand of trees immediately adjacent to a high-value scenic area, recreation facility, or forest highway (see "Background", "Middleground").

**FOREST LAND** - Land at least 10 percent occupied by forest trees of any size or formerly having had such cover and not currently developed for non-forest use. Lands developed for non-forest use include areas devoted to crops, improved pasture, residential or administrative areas, improved roads of any width and adjoining road clearing and powerline clearing of any width (36 CFR 219.3)

**FOREST AND RANGELAND RENEWABLE RESOURCES PLANNING ACT (RPA) 1974** - An act of Congress requiring the preparation of a program for the management of the National Forest's renewable resources and preparation of land and resource management plans for units of the National Forest System. It also requires a continuing inventory of all National Forest System lands and renewable resources.

**FOREST-WIDE STANDARD** - A principle requiring a specific level of attainment; a rule to measure against. The Forest-wide Standards apply to all areas of the Forest regardless of the other prescriptions applied.

**FORPLAN** - A linear programming system used for developing and analyzing Forest Planning Alternatives.

**FORWET** - That forested ecotype where conifer trees other than Douglas-fir or ponderosa pine are climax species over time. Characterized by more available moisture than the forested dry (FORDRY) zone.

**FREE-TO-GROW** - A term used by silviculturists to indicate that trees are free of growth restraints, the most common of which is competing overtopping vegetation.

**FUELBREAK** - Any natural or constructed barrier utilized to segregate, stop, or control the spread of fire

**FUELS** - Any material that will carry and sustain a forest fire, primarily natural materials, both live and dead.

**FUEL TREATMENT** - The rearrangement or disposal of natural or activity fuels to reduce the fire hazard

## **G**

**GAME** - Wildlife that are hunted for sport and regulated by State Game regulations.

**GENERAL DISTRIBUTION** - The geographic area presently occupied, often on a seasonal basis, by a species within the planning area. Distribution is not to be confused with present occupancy of specific habitat(s). Resource management activities will create changes in habitat which will force local shifts in occupancy.

**GENERAL FOREST (GF)** - The portion of the Forest where timber management and other consumptive uses are emphasized.

**GENETIC INTEGRITY** - Refers to a normal healthy genetic pool (foundation) within a biological population to provide for long-term maintenance and survival of the species. Of specific concern in management direction is the prevention of loss of genetic variance (heterozygosity) and the avoidance of inbreeding depression, an important part of a given population's genetic integrity within the gene pool.

**GOAL** - A concise statement that describes a desired condition to be achieved sometime in the future. It is normally expressed in broad general terms and is timeless in that it has no specific date by which it is to be completed. Goal statements form the principle basis from which objectives are developed. (36 CFR 219.3)

**GOODS AND SERVICES** - The various outputs, including on-site uses, produced from forest and rangeland resources. (36 CFR 219.3)

**GRADIENT** - Change of elevation, velocity, pressure or other characteristics per unit length of slope.

**GROUP SELECTION CUTTING** - Removal of tree groups ranging in size from a fraction of an acre up to about 2 acres in area that is smaller than the minimum feasible for even-aged management of a single stand.

**GUIDELINE** - An indication or outline of policy or conduct; i.e. any issuance that assists in determining the course of direction to be taken in any planned action to accomplish a specific objective.

**GULLY** - A channel or miniature valley cut by concentrated runoff but through which water commonly flows only during and immediately after heavy rains or during the melting of snow.

**GULLY EROSION** - The erosion process whereby water accumulates in narrow channels and, over short periods, removes the soil from this narrow area to considerable depths, ranging from one to two feet to as much as 75 to 100 feet.

## **H**

**HABITAT** - The place where a plant or animal naturally or normally lives and grows.

**HABITAT CAPABILITY** - The estimated ability of an area, given existing or predicted habitat conditions, to support a wildlife, fish or plant population. It is measured in terms of potential population numbers.

**HARVEST CUTTING METHOD** - A combination of interrelated actions whereby forests are tended, harvested, and replaced. The combination of management practices used to manipulate the vegetation in forests. Harvest cutting methods are classified as even-aged and uneven-aged.

**HEAVING** - The partial lifting of plants out of the ground, frequently breaking their roots, as a result of freezing and thawing of the surface soil during the winter.

**HIDING COVER** - Vegetation capable of hiding 90 percent of a standing deer or elk from the view of a human at a distance of 200 feet.

**HIGH QUALITY HABITAT** - Habitat which completely satisfies a species existence requirement

**HORIZONTAL DIVERSITY** - The distribution and abundance of plant and animal communities or successional stages across an area of land; the greater the number of communities, the higher the degree of horizontal diversity. This concept is close to, but not exactly the same as, "even-aged management," although each may influence the other. Application of even-aged management, for example, can be designed to accomplish horizontal diversity objectives.

**HUMAN RESOURCE PROGRAMS** - Providing human and natural resource benefits through administering and hosting programs in work, training, and education for the unemployed, the underemployed, the elderly, the young and others with special needs.

**HYDRAULIC GRADIENT** - The slope of the hydraulic grade line. The slope of the free surface of water flowing in an open channel



**INDICATOR SPECIES** - A wildlife management scheme in which the welfare of a selected species is presumed to indicate the welfare of other species. The condition of the selected species can be used to assess the impacts of management actions on a particular area.

**INITIAL ACTION** - The prompt, preplanned response to a wildfire.

**INTEGRATED PEST MANAGEMENT** - A process for selecting strategies to regulate forest pests in which all aspects of a pest-host system are studied and weighed. The information considered in selecting appropriate strategies includes the impact of the unregulated pest population on various resources values, alternative regulatory tactics and strategies, and benefit/cost estimates for these alternative strategies. Regulatory strategies are based on sound silvicultural practices and ecology of the pest-host system and consist of a combination of tactics such as timber stand improvement plus selective use of pesticides. A basic principle in the choice of strategy is that it be ecologically compatible or acceptable (36 CFR 219.3)

**INTEGRATED RESOURCE MANAGEMENT** - A management strategy which emphasizes no resource element to the exclusion or violation of the minimum legal standards of others.

**INTENSIVE FOREST MANAGEMENT** - A high investment level of timber management that includes regeneration with genetically improved seedling stock, control of competing vegetation, fill-in planting, precommercial thinning as needed for stocking control, and one or more commercial thinnings.

**INTERDISCIPLINARY TEAM (ID TEAM)** - A team of people that collectively represent several disciplines and whose duty it is to coordinate and integrate the planning activities

**INTERMITTENT STREAM** - A stream that runs water in most months, but does not run water during dry seasons of most years.

**INVENTORIED ROADLESS AREA** - Areas of undeveloped Federal land, greater than 5,000 acres in size, within which there are no improved roads maintained for travel by means of motorized vehicles intended for highway use. Exceptions are those areas less than 5,000 acres manageable in their natural condition, contiguous to existing wilderness, or are of issue to the public.

**IRRETRIEVABLE** - Applies to losses of production, harvest, or use of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost during the time an area is used as a winter sports site. If the use is changed, timber production can be resumed. The production lost is irretrievable, but the action is not irreversible.

**IRREVERSIBLE** - Applies primarily to the use of nonrenewable resources, such as minerals or cultural resources, or to those factors, such as soil productivity, that are renewable only over long time periods. Irreversible also includes loss of future options.

**ISSUE** - A point, matter, or question of public discussion or interest to be addressed or decided through the planning process.

**K**

**KNUTSON-VANDENBERG ACT (KV)** - Legislation authorizing the collection of money from timber sale receipts for reforestation, stand improvements, and other resource improvement or mitigation projects on timber sale areas.

**KV** - An abbreviation of Knutson-Vandenberg.

**L**

**LAND ALLOCATION** - The assignment of a management emphasis to particular land areas with the purpose of achieving the goals and objectives of that alternative.

**LANDINGS** - Those designated areas within a timber sale where logs are temporarily stored before transport to a mill.

**LANDTYPE** - A portion of the landscape resulting from geomorphic and climatic processes with defined characteristics having predictable soil, hydrologic, engineering productivity, and other behavior.

**LEASABLE MINERALS** - Coal, oil, gas, phosphate, sodium, potassium, oil shale, sulphur, geothermal steam  
Also includes other minerals on acquired National Forest lands

**LIMITING HABITAT** - Habitat which restricts the distribution, numbers, or condition of an organism

**LOCATABLE MINERALS** - Generally includes those hardrock minerals which are mined and processed for the recovery of metals, but may also include certain non-metallic minerals and uncommon varieties of mineral materials.

**LONG-TERM SUSTAINED YIELD TIMBER CAPACITY** - The highest uniform wood yield from lands being managed for timber production that may be sustained under a specified management intensity consistent with multiple-use objectives. (36 CFR 219.3)

**M**

**M** - Thousand

**MANAGEMENT AREA** - An area with similar management objectives and a common management prescription

**MANAGEMENT CONCERN** - An issue, problem, or a condition which constrains the range of management practices identified by the Forest Service in the planning process. (36 CFR 219.3)

**MANAGEMENT DIRECTION** - A statement of multiple-use and other goals and objectives, the associated management prescriptions, and standards and guidelines for attaining them (36 CFR 219.3)

MANAGEMENT INTENSITY - The management practice or combination of management practices and associated costs designed to obtain different levels of goods and services. (36 CFR 219.3)

MANAGEMENT PRACTICE - A specific activity, measure, course of action, or treatment. (36 CFR 219.3)

MANAGEMENT PRESCRIPTION - Management practices and intensity of management selected and scheduled for application on a specific area to attain multiple-use and other goals and objectives. (36 CFR 219.3)

MANAGEMENT REQUIREMENT (MR) - Minimum standards for resource protection, vegetation manipulation, silvicultural practices, even-aged management, riparian areas, and soil and water resources, to be met in accomplishing National Forest System goals and objectives.

MARGINAL TIMBER COMPONENT - Timber on which the income just equals or could just equal the costs of production under a given form of management.

MARKET RESOURCES - Products derived from renewable and nonrenewable resources that have a well-established market value; for example, forage, timber, water, and minerals.

MARKET VALUE - The unit price of an output normally exchanged in a market after at least one stage of production, expressed in terms of what people are willing to pay

MASS MOVEMENT - A general term for any of the variety of processes by which large masses of earth material are moved down slope by gravitational forces, either slowly or quickly.

MATURE TIMBER - Trees that have attained full development, particularly in height, and are in full seed production.

MAXIMUM MODIFICATION - A visual quality objective meaning man's activity may dominate the characteristic landscape but should appear as a natural occurrence when viewed as background.

MBF - Thousand board feet. A measure of wood volume

MCF - Thousand cubic feet. A measure of wood volume. The conversion ratio for the Wenatchee National Forest is 5.45 board feet per one cubic foot of wood

MEAN ANNUAL INCREMENT OF GROWTH - The total increase in girth, diameter, basal area, height, or volume of individual trees or a stand up to a given age, divided by that age.

MIDDLEGROUND - A term used in visual management to describe the visible terrain beyond the foreground where individual trees are still visible but do not stand out distinctly from the stand

MINERAL SOIL - Weathered rock materials usually containing less than 20 percent organic matter.

MINERAL WITHDRAWAL - The exclusion of locatable mineral deposits from mineral entry on areas required for administrative sites by the Forest Service and other areas highly valued by the public. Public lands withdrawn from entry under the General Mining Laws and/or the Mineral Leasing Laws.

MINIMUM VIABLE POPULATION - The low end of the viable population range

MINING CLAIMS - That portion of the public estate held by law for mining purposes in which the right of exclusive possession of locatable mineral deposits is vested to the locator of a deposit.

MITIGATION - Actions to avoid, minimize, reduce, eliminate, or rectify the impact of a management practice

MM - Million.

MMBF - Million board feet.

MMCF - Million cubic feet.

MONITORING - The periodic evaluation of Forest Plan management practices on a sample basis to determine how well objectives have been met.

MODIFICATION - A visual quality objective meaning man's activity may dominate the characteristic landscape but must, at the same time, utilize natural established form, line, color, and texture. It should appear as a natural occurrence when viewed in foreground or middleground.

MULTIPLE USE - The management of all the various renewable surface resources of the National Forests so that they are utilized in the combination that will best meet the needs of the American people. The concept also includes making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in the use to conform to changing needs and conditions. Some lands will be used for less than all of the resources. There will be harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land. Consideration will be given to the relative values of the various resources, and management will not necessarily favor the combination of uses that will give the greatest dollar return or the greatest unit output.

MUNICIPAL SUPPLY WATERSHED - A watershed that provides water for human consumption where Forest Service management could have a significant effect upon the quality of water at the point of intake. The watershed must provide water utilized by a community or any other public water system regularly serving 25 individuals at least 60 days out of the year or provide at least 15 service connections. This definition can include such facilities as campgrounds, organization camps, resorts, residential areas, etc.



NAAQS - National Ambient Air Quality Standards

NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (NEPA) - An Act, to declare a National policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man, to enrich the understanding of the ecological systems and natural resources important to the nation; and to establish a Council on Environmental Quality.

NATIONAL FOREST MANAGEMENT ACT OF 1976 (NFMA) - An Act amending the Forest and Rangeland Renewable Resources Planning Act. NFMA requires the preparation of Regional and Forest Plans and the preparation of regulations to guide that development.

NATIONAL FOREST SYSTEMS - All National Forest lands reserved or withdrawn from the public domain of the United States, all National Forest lands acquired through purchase, exchange, donation, or other means, the National Grasslands and land utilization projects administered under Title III of the Bankhead-Jones Farm Tenant Act (50 Stat. 525, 7 U.S.C. 1010-1012), and other lands, waters or interests therein which are administered by the Forest Service or are designated for administration through the Forest Service as a part of the system (16 U.S.C. 1608)

NATURAL FOREST - The condition of a forest environment at any point in time including its associated plant and animal communities, which has been reached essentially through the process of natural succession. This process would include the effects of natural catastrophic occurrences.

NDF - An abbreviation of Non-Declining Flow.

NEPA - An abbreviation of National Environmental Policy Act.

**NET PUBLIC BENEFITS** - An expression used to signify the overall long-term value to the nation of all outputs and positive effects (benefits) less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not. Net public benefits are measured by both quantitative and qualitative criteria rather than a single measure or index. The maximization of net public benefits to be derived from management of the units of the National Forest System is consistent with the principles of multiple-use and sustained-yield. (36 CFR 219.3)

**NET VALUE CHANGE** - The estimation process carried out by an interdisciplinary team to assess positive and negative effects of individual resource allocation or management area designation. An estimation of physical effects and economic consequences of various fire intensity levels.

**NFMA** - An abbreviation of the National Forest Management Act of 1976.

**NON-CHARGEABLE TIMBER HARVEST** - Timber harvest that is not chargeable to the allowable sale quantity.

**NON-CONSUMPTIVE USE** - That use of a resource that does not reduce the supply

**NON-DECLINING FLOW (NDF)** - A level of timber production assigned so that the planned timber sale and harvest for any future decade is equal to or greater than the planned sale and harvest for the preceding decade.

**NON-GAME** - Any species of wildlife or fish which is not managed or otherwise controlled by hunting, fishing, or trapping regulations.

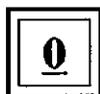
**NON-MARKET** - Products derived from National Forest resources that do not have a well-established market value, for example, recreation, wilderness, wildlife.

**NON-POINT SOURCE POLLUTION** - Pollution whose source is general rather than specific in location.

**NON-PRICED OUTPUTS** - Outputs for which there is no available market transaction evidence and no reasonable basis for estimating a dollar value. Subjective non-dollar values are given to non-priced outputs.

**NOXIOUS WEEDS** - A plant considered to be extremely destructive or harmful to agriculture and designated by law. An undesirable species that conflicts with, restricts, or otherwise causes problems with the management objectives.

**NPB** - An abbreviation of net public benefits.



**OBJECTIVE** - A concise, time-specific statement of measurable planned results that respond to pre-established goals. An objective forms the basis for further planning to define the precise steps to be taken and the resources to be used in achieving identified goals. (36 CFR 219.3)

**OCCUPANCY TRESPASS** - The illegal occupation or possession of National Forest land or property

**OFF-ROAD VEHICLE (ORV)** - Any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, snow, ice, or other natural terrain.

**OLD GROWTH STAND** - An old-growth stand is defined as any stand of trees 10 acres or greater generally containing the following characteristics: 1) stands contain mature and overmature trees in the overstory and are well into the mature growth stage; 2) stands will usually contain a multilayered canopy and trees of several age classes, 3) standing dead trees and down material are present; and 4) evidence of man's activities may be present but does not significantly alter the other characteristics and would be a subordinate factor in a description of such a stand

OLIGOTROPHIC - Lakes having low nutrient supplies which are poor producers of organic matter.

OPPORTUNITY COSTS - The values of a resource's foregone net benefits in its most economically efficient alternative use.

OPTIMUM DENSITY - For wildlife, the maximum rate of animal stocking possible without inducing damage to vegetation or related resources, may vary from year to year because of environmental and/or population factors.

ORV - An abbreviation for off-road vehicles.

OUTPUT - A good, service, or on-site use that is produced from forest and rangeland resources. See FSH 1309.11 for forest and rangeland outputs, codes and units of measure. Examples: X06 - Softwood Sawtimber production - MCF; X80 - Increased Water Yield - Acre feet; W01 - Primitive Recreation Use - RVD's

OVERSTORY - That portion of the trees in a forest of more than one story, forming the upper or uppermost canopy layer.



PAOT - Persons At One Time - Public recreational measurement term. The number of people in an area or using a facility at one time

PARENT MATERIAL - The unconsolidated and more or less chemically weathered mineral or organic matter from which the upper horizons of the soil profile are developed

PARTIAL CUT - Covers a variety of silvicultural practices where a portion of the stand is removed and a portion is left.

PARTIAL RETENTION - A visual quality objective where man's activities may be evident but subordinate to the characteristic landscape.

PARTICULATES - Small particles suspended in the air and generally considered pollutants

PATENTED MINING CLAIMS - A patent is a document which conveys a title. Public law provides that when patented, a mining claim becomes private property and is land over which the United States has no property rights, except as may be reserved in the patent. After a mining claim is patented, the owner does not have to comply with requirements of the General Federal Mining law, but is required to meet State regulations

PAYMENT IN LIEU OF TAXES - Payments to local or State governments based on ownership of Federal land and not directly dependent on production of outputs or receipt sharing. Specifically, they include payments made under the Payments in Lieu of Taxes Act of 1976 by U S Department of the Interior.

PERENNIAL STREAMS - A stream that runs water year around.

PERSONS-AT-ONE-TIME (PAOT) - A recreation capacity measurement term indicating the number of people that can use a facility or area at one time.

PLANNING AREA - The area of the National Forest System covered by a regional guide or Forest Plan (36 CFR 219.3)

PLANNING HORIZON - The overall time period considered in the planning process that spans all activities covered in the analysis or plan and all future conditions and effects of proposed actions which would influence the planning decisions. (36 CFR 219.3)

PLANNING PERIOD - One decade The time interval within the planning horizon that is used to show incremental changes in yields, costs, effects, and benefits. (36 CFR 219 3)

**PLANT COMMUNITIES** - A vegetation complex unique in its combination of plants which occur in particular locations under particular influences. A plant community is a reflection of integrated environmental influences on the site - such as soils, temperature, elevation, solar radiation, slope, aspect, and rainfall.

**PNV** - An abbreviation of present net value.

**POTENTIAL YIELD** - (This term is in reference to the Timber Management plans only.) Optimum sustained yield of timber harvest volume attainable with intensive forestry on available commercial forest land (forest lands able to produce 20 cubic feet of timber per acre per year or more) while considering the interrelationship with other forest resources and uses. Programmable net salvage volume and volume from marginally economical lands are also included.

**PRACTICES** - Those management activities that are proposed or expected to occur.

**PRECOMMERCIAL THINNING** - The selective felling or removal of trees in a young stand, primarily to accelerate diameter increment on the remaining stems, maintain a specific stocking or stand density range, and improve the vigor and quality of the trees that remain.

**PRESCRIBED FIRE** - A wildland fire burning under preplanned specified conditions which will accomplish certain planned objectives. The fire may result from either planned or unplanned ignitions.

**PRESCRIBED NATURAL FIRE** - The use of unplanned natural ignitions to meet management prescriptions.

**PRESENT NET VALUE (PNV)** - The difference between the discounted values (benefits) of all outputs to which monetary values or established market prices are assigned, and the total discounted costs of managing the planning area (36 CFR 219.3)

**PRESERVATION** - A visual quality objective that allows only ecological changes to take place.

**PRESUPPRESSION** - Activities required in advance of fire occurrence to ensure an effective suppression action. It includes (1) recruiting and training fire forces, (2) planning and organizing attack methods, (3) procuring and maintaining fire equipment, and (4) maintaining structural improvements necessary for the fire program.

**PRICE** - The unit value of an output expressed in dollars.

**PRIMARY CAVITY EXCAVATOR** - Wildlife species that digs or chips out cavities in wood to provide itself or its mate with a site for nesting or roosting.

**PRIMITIVE RECREATION** - Those recreation activities which occur in areas characterized by an essentially unmodified natural environment of fairly large size (2,500 acres or greater).

**PRODUCTION POTENTIAL** - The capability of the land or water to produce a given resource

**PRODUCTIVE FOREST LANDS** - Forest lands that are capable of producing crops of industrial wood and have not been reserved or deferred from timber management.

**PROGRAM DEVELOPMENT AND BUDGETING** - The process by which forest management activities are proposed and funded

**PROGRAM ELEMENT** - An individual Forest Service area of responsibility, which in combination with other elements, comprises the statutory or Executive directed mission of the Forest Service. Specific Forest Service program elements are defined in the Management Information Handbook (FSH 1309 11)

**PROGRAMMED HARVEST** - The amount of timber that is scheduled for harvesting. Includes salvage and cull timber volumes. It is based on current demand, funding, and multiple use considerations.

**PUBLIC ACCESS** - Usually refers to a road or trail route over which a public agency claims a right-of-way for public use

**PUBLIC ISSUE** - A subject or question of widespread public interest relating to management of the National Forest System. (36 CFR 219.3)

**PURCHASER CREDIT** - Credit earned by the purchaser of a National Forest timber sale in return for construction of contract-specified roads. Earned purchaser credit may be used by the purchaser as payment for National Forest timber removed.



**RANGE ALLOTMENT** - A designated area containing land suitable and available for livestock grazing use upon which a specified number and kind of livestock are grazed under an approved allotment management plan. It is the basic management unit of the range resource on National Forest System lands administered by the Forest Service.

**RANGER DISTRICT** - An administrative subdivision of the Forest, supervised by a District Ranger who reports to the Forest Supervisor.

**RAPTORS** - Any predatory bird - such as a falcon, hawk, eagle or owl - that has feet with sharp talons or claws adapted for seizing prey and a hooked beak for tearing flesh.

**RARE II** - An abbreviation of Roadless Area Review and Evaluation II

**REAL DOLLAR VALUE** - A monetary value that compensates for the effects of inflation. (36 CFR 219.3)

**RECORD OF DECISION (ROD)** - A document separate from but associated with an Environmental Impact Statement which states the decision, identifies all alternatives, specifying which were environmentally preferable, and states whether all practicable means to avoid environmental harm from the alternative have been adopted, and if not, why not. (40 CFR 1505.2)

**RECREATION CAPACITY** - The number of people that can take advantage of recreation opportunity at any one time without substantially diminishing the quality of the experience or the biophysical resources.

**RECREATION INFORMATION MANAGEMENT (RIM)** - The Forest Service system for recording recreation facility condition and use.

**RECREATION OPPORTUNITY** - An opportunity for a user to participate in a preferred activity within a preferred setting, in order to realize those satisfying experiences which are desired

**RECREATION OPPORTUNITY SPECTRUM (ROS)** - Land delineations that identify a variety of recreation experience opportunities categorized into six classes on a continuum from primitive to urban. Each class is defined in terms of the degree to which it satisfies certain recreation experience needs. This is measured based on the extent to which the natural environment has been modified, the type of facilities provided, the degree of outdoor skills needed to enjoy the area, and the relative density of recreation use. The seven classes are.

1. **Primitive**--Area is characterized by an essentially unmodified natural environment of fairly large size. Interaction between users is very low, and evidence of other users is minimal. The area is managed to be essentially free from evidence of management restrictions and controls. Motorized use within the area is not permitted.

2. **Semi-primitive Non-motorized**--Area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum onsite controls and restrictions may be present, but subtle. Motorized recreation use is not permitted, but local roads used for other resource management activities may be present on a limited basis. Use of such roads is restricted to minimize impacts on recreational experience opportunities.

3. Semi-primitive Motorized--Area is characterized by a predominantly natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way that minimum onsite controls and restrictions may be present, but subtle Motorized recreation use of local primitive or collector roads with predominantly natural surfaces and trails suitable for motor bikes is permitted.

4. Roaded Natural--Area is characterized by predominantly natural-appearing environments with moderate evidence of the sights and sounds of man. Such evidence usually harmonizes with the natural environment. Interaction between users may be moderate to high, and evidence of other users prevalent. Resource modification and utilization practices are evident but harmonize with the natural environment. Conventional motorized use is allowed and incorporated into construction standards and design of facilities.

5. Roaded Modified--Area is generally natural appearing, but has significant vegetation management and resource modification. Modifications generally harmonize with the natural environment. A moderate opportunity exists for isolation and undisturbed activities but some interaction with other visitors can be expected. Conventional motorized use is allowed and incorporated into construction standards and designs of facilities.

6. Rural--Area is characterized by a natural environment that has been substantially modified by development of structures, vegetative manipulation, or pastoral agricultural development. Resource modification and utilization practices may be used to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Moderate user densities are present away from developed sites. Facilities for intensified motorized use and parking are available.

7. Urban--Area is characterized by a substantially urbanized environment, although the background may have natural-appearing elements. Renewable resource modification and utilization practices are often used to enhance specific recreation activities. Vegetative cover is often exotic and manicured. Sights and sounds of humans are predominant on site and in nearby areas. Facilities for highly intensified motor use and parking are available with forms of mass transit often available to carry people throughout the site.

RECREATION VISITOR DAY (RVD) - A unit for measuring recreation use, with 12 visitor hours in a visitor day. This may consist of one person for 12 hours, 12 persons for one hour, or any equivalent combination of continuous or intermittent recreation use by individuals or groups.

REFORESTATION - The natural or artificial restocking of an area with forest trees; most commonly used in reference to artificial restocking.

REGENERATION - The actual seedlings and saplings existing in a stand; or the act of establishing young trees naturally or artificially.

REGENERATION CUT - Any removal of trees to make regeneration possible.

REGION - An area covered by a Regional guide. See FSM 1221.3 for organizational definitions.

REGIONAL FORESTER - The official responsible for administering a single Forest Service region.

REGIONAL GUIDE - The guide developed to meet the requirements of the Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA), as amended. It guides all natural resource management activities, and establishes management standards and guidelines for the National Forest System lands within a given region, it also disaggregates the assigned Regional RPA objectives to the Forests within that Region.

REGULATED VOLUME - Same as Allowable Sale Quantity.

REHABILITATION - A short-term management alternative used to return existing visual impacts in the natural landscape to a desired visual quality.

**RELEASE** - Freeing a tree or group of trees from competition by cutting or otherwise eliminating vegetation that is overtopping or closely surrounding them.

**REMOVAL CUT** (Final Cut) - The removal of the last seed bearing or shelter trees after regeneration is established under a shelterwood method.

**RESEARCH NATURAL AREA** - An area of land in as near a natural condition as possible that exemplifies typical or unique vegetation and associated biotic, soil, geologic, and aquatic features. The area is set aside to preserve a representative sample of an ecological community primarily for non-manipulative scientific and education purposes.

**RESERVED FOREST LAND** - Public forest land withdrawn from timber utilization through statute or administrative regulations (e.g. Wilderness, Research Natural Areas).

**RESIDENT FISH** - Generally refers to trout and char which are not anadromous. However, some Forest reservoirs contain warmwater resident fish species such as bass.

**RESIDUAL STAND** - The trees remaining standing after some form of selection cutting is performed on a stand

**RESIDUE** - Material which includes both desired and unwanted vegetative residues which result from an activity or natural event.

**RESOURCE PLANNING ACT (RPA)** - The Forest and Rangeland Renewable Resources Planning Act of 1974 Also refers to the National Assessment and Recommended Program developed to fulfill the requirements of the Act.

**RESPONSIBLE LINE OFFICER** - For land management planning purposes, the Forest Service employee who has been delegated the authority to carry out a specific planning action. (36 CFR 219.3)

**REST-ROTATION** - A system of grazing management which defines systematically recurring periods of grazing and deferment for two or more pastures or management units.

**RETENTION** - A visual quality objective where human activities are not evident to the casual forest visitor.

**RILL EROSION** - An erosion process in which numerous small channels only several inches deep are formed, occurs mainly on recently cultivated or disturbed soils.

**RIPARIAN** - Pertaining to acres of land directly influenced by water. Riparian areas usually have visible vegetative or physical characteristics reflecting this water influence. Stream sides, lake borders, or marshes are typical riparian areas.

**RIPARIAN-AQUATIC PROTECTION ZONE** - A geographically delineated area with distinctive resource values and characteristics that is comprised of aquatic and riparian ecosystems. This includes floodplains, wetlands, and all areas within a variable horizontal distance from the normal line of high water of a stream channel or from the shoreline of a standing body of water

**RISK** - The degree and probability of loss based on chance.

**RUNOFF** - That part of the water which travels over the soil surface to the nearest outlet or channel

**RNA** - An abbreviation of Research Natural Area.

**ROAD** - A general term denoting a way for purposes of travel by vehicles greater than 40 inches in width

a. **Forest Arterial Road**. Provides services to large land areas and usually connects with public highways or other Forest arterial roads to form an integrated network of primary travel routes. The location and standard are often determined by a demand for maximum mobility and travel efficiency rather than specific resource management service. It is usually developed and operated for long-term land and resource management purposes and constant service (FSM 7710.51).

b. **Forest Collector Road**. Serves smaller land areas than a Forest arterial road and is usually connected to a Forest arterial or public highway. Collects traffic from Forest local roads and/or terminal facilities. The location and standard are influenced by both long-term multiresource service needs as well as travel efficiency. May be operated for either constant or intermittent service, depending on land use and resource management objectives for the area served by the facility (FSM 7710.51).

c. **Forest Local Road**. Connects terminal facilities with Forest collector or Forest arterial roads or public highways. The location and standard are usually controlled by specific resource activity requirements rather than travel efficiency needs (FSM 7710.51).

**ROADLESS AREA** - See Inventoried Roadless Area.

**ROADLESS AREA REVIEW AND EVALUATION II (RARE II)** - The national inventory of roadless and undeveloped areas within the National Forest and grasslands. This refers to the second such assessment, which was documented in the Final Environmental Impact Statement of the Roadless Area Review and Evaluation, January 1979.

**ROS** - An abbreviation of Recreation Opportunity Spectrum.

**ROTATION** - Planned number of years, between the formation of a generation of trees and its final harvest of a specified stage of maturity.

**ROTATION AGE** - The age of a stand when harvested.

**ROUNDWOOD** - Commercially valuable wood that is generally too small to be made into boards.

**RPA** - The Forest and Rangeland Renewable Resources Planning Act of 1974 Also refers to the National Assessment and Recommended Program developed to fill the requirements of the Act.

**RPA RESOURCE TARGETS** - Quantified resource goals stated in the Forest Service Region 6 plan.

**RVD's** An abbreviation of Recreation Visitor Days.



**SALE SCHEDULE** - The quantity of timber planned for sale by time period from an area of suitable land covered by a forest plan. The first period (usually a decade) of the selected sale schedule provides the allowable sale quantity. Future periods are shown to ensure that long term sustained yield will be achieved and maintained. (36 CFR 219.3)

**SALVAGE CUTTING** - Intermediate cuttings made to remove trees that are dead or in imminent danger of being killed by injurious agents

**SANITATION CUTTING** - The removal of dead, damaged or susceptible trees primarily to prevent the spread of insect pests or diseases.

**SATURATION DENSITY** - (Same as tolerance density.) This term relates to the requirement of many wildlife species for living space. This condition is most marked in territorial species. Space is the limiting factor to the further increases of the population density of these species

**SCENIC AREAS** - Places of outstanding or matchless beauty which require special management to preserve these qualities. They may be established under 36 CFR 294.1 whenever lands possessing outstanding or unique natural beauty warrant this classification.

**SCENIC RIVERS** - See Wild and Scenic Rivers

**SCHEDULED TIMBER HARVEST** - Timber harvest that is chargeable to the annual allowable sale quantity for the Forest.

**SCOPING PROCESS** - A part of the National Environmental Policy Act (NEPA) process; early and open activities used to determine the scope and significance of the issues; and the range of actions, alternatives, and impacts to be considered in an Environmental Impact Statement (40 CFR 1501.7).

**SCORP** - Statewide Comprehensive Outdoor Recreation Plan.

**SECOND GROWTH** - Forest growth that has become established following some interference with the previous forest growth (e.g., cutting, serious fire, or insect attack).

**SECONDARY USER SPECIES** - Wildlife that occupies a site (cavity in a snag or a den) created by another species.

**SEDIMENT** - Solid material, both mineral and organic, that is in suspension, and is being transported from its site of origin by air, water, gravity, or ice, or has come to rest on the earth's surface either above or below sea level.

**SEDIMENT YIELD** - the total sediment outflow from a drainage basin in a specified period of time.

**SEED TREE CUTTING** - Removing all mature trees from a stand except for selected seed-bearing trees retained on site to provide a seed source for stand regeneration.

**SELECTION CUT** - Selection cutting is the periodic removal of mature trees individually or in small groups from an uneven-aged forest. By this method, both regeneration cutting and tending of immature stand components are accomplished at each entry.

**SEMI-PRIMITIVE MOTORIZED ROS CLASS** - See RECREATION OPPORTUNITY SPECTRUM

**SEMI-PRIMITIVE NON-MOTORIZED ROS CLASS** - See RECREATION OPPORTUNITY SPECTRUM

**SENSITIVE SPECIES** - Those species of plants or animals that have appeared in the Federal Register as proposed for classification and are under consideration for official listing as endangered or threatened species, that are on an official State list, or that are recognized by the Regional Forester as needing special management to prevent their being placed on Federal or State lists.

**SERAL** - A biotic community which is a developmental, transitory stage in an ecological succession.

**SERAL STAGE**--See "successional stage"

**SHELTERWOOD CUTTING** - Any regeneration cutting in a stand designed to establish a new stand under the protection (overhead or side) of the old stand. Usually the shelterwood involves two separate harvest operations. The first harvest (seed cut) is designed to create space and seed production to establish new trees. The second cut (removal cut) is designed to remove the remainder of the old stand before it begins to compete with the new stand for light and nutrients. This is usually within 10 years. (See also EXTENDED SHELTERWOOD.)

**SHEET EROSION** - The removal of a fairly uniform layer of soil from the land surface by runoff water.

**SILVICULTURAL SYSTEM** - A management process whereby forests are tended, harvested, and replaced resulting in a forest of distinctive form. Systems are classified according to the logging method that removes the mature crop and provides for regeneration and according to the type of forest thereby produced (36 CFR 219.3)

**SILVICULTURE** - The art and science of controlling the establishment, composition and growth of forests

**SITE INDEX** - A numerical evaluation of the quality of land for plant productivity which uses height growth as a function of age.

**SITE PRODUCTIVITY** - Production capability of specific areas of land to produce defined outputs such as AUMs, cubic feet/acre/yr., etc.

**SIZE CLASS** - For purposes of Forest planning, size class refers to the three intervals of tree stem diameter used for classification of timber in the Forest Plan data base:

less than five-inch diameter = seedling/sapling

five to eight-inch diameter = pole timber

greater than eight-inch diameter = sawtimber

**SLASH** - The wood residue left on the ground after timber cutting and/or accumulating there as a result of storm, fire, or other damage. It includes unused logs, uprooted stumps, broken or uprooted stems, branches, twigs, leaves, bark, and chips.

**SMALL GAME** - Birds and small mammals typically hunted or trapped.

**SMOLT HABITAT CAPABILITY** - Smolt habitat capability is a measure of the productive capability of aquatic habitat to produce smolts of a given species.

**SNAG** - A standing dead tree.

**SOCIOECONOMIC** - Pertaining to, or signifying the combination or interaction of, social and economic factors.

**SOHA** - An abbreviation for Spotted Owl Habitat Area

**SOIL** - The unconsolidated mineral and organic material on the immediate surface of the earth.

**SOIL and WATER CONSERVATION PRACTICES (SWCP)** -- The set of practices which ensures that soil productivity is maintained, soil loss and water quality impacts are minimized, and water related beneficial are protected during implementation of a project. These practices include the following: (1) State recognized Best Management Practices, (2) Forest-wide standards and guidelines (3) Management Area standards and guidelines, and (4) practices identified at the area and project levels based on on-site specific evaluation.

**SOIL DISTURBANCE** - Soil disturbance is the mixing of duff material or other woody material into the surface horizon or horizons without significant movement of the soil from one spot to another.

**SOIL RESOURCE COMMITMENT** - Soil resource commitment is a conversion of a productive site to an essentially nonproductive site for a period of more than 50 years.

**SOIL SURVEYS** - Systematic examinations of soils in the field and in laboratories which are then interpreted according to their adaptability for various crops, grasses and trees.

**SOUND WOOD** - Timber that is free from defect, damage, or decay, i.e., in solid, whole, good condition

**SPECIAL TIMBER COMPONENT** - (obsolete term) That part of the planned timber harvest area and volume where timber production may require special harvest methods, production rates, or other requirements to benefit or mitigate resources other than timber.

**SPECIES MANAGEMENT GUIDE** - A guide for management of an indicator species in a particular area. The guide includes management direction, schedules for utilization, inventories, research, monitoring, and optimum cover/forage relationships for the long term.

**SPECIES RICHNESS MANAGEMENT** - A wildlife management strategy to maintain viable populations of all resident species.

**SPOTTED OWL HABITAT AREA (SOHA)** - A habitat area designated to support one pair of owls. A dedicated SOHA does not allow scheduled timber harvest on otherwise suitable timber lands.

**SPRING BREAK-UP** - Time of year when roads are damaged or "break up" due to melting frost and ice, generally from first of March to middle of April

**STAND** - Timber possessing uniformity as regards to type, age class, risk class, vigor, size class, and stocking class

**STANDARD** - A principle requiring a specific level of attainment, a rule to measure against.

**STANDARD TIMBER COMPONENT** - That part of the planned timber harvest area and volume of normal or "standard" sawlog production Used in Timber Management Plans.

**STOCKING** - The degree of occupancy of land by trees as measured by basal area or number of trees as compared to a stocking standard.

**STORET** - The acronym for a computerized water quality data base operated nationwide by the U.S. Environmental Protection Agency.

**STRATEGIC MINERALS** - Those minerals of which the U.S. imports 50 percent or more from foreign sources (based on 1978 U.S. Bureau of Mines figures).

**STREAM CLASS** - Classification of streams based on the present and foreseeable uses made of the water, and the potential effects of on-site changes on downstream uses. Four classes are defined

Class I - Perennial or intermittent streams that provide a source of water for domestic use; are used by large numbers of fish for spawning, rearing or migration; and/or are major tributaries to other Class I streams.

Class II - Perennial or intermittent streams that are used by moderate though significant numbers of fish for spawning, rearing or migration; and/or may be tributaries to Class I streams or other Class II streams.

Class III - All other perennial streams not meeting higher class criteria.

Class IV - All other intermittent streams not meeting higher class criteria.

**STREAMSIDE MANAGEMENT UNIT (SMU)** - An area of varying width adjacent to a stream where practices that might affect water quality, fish and other aquatic resources are modified to meet water quality goals, for each class of stream.

**SUB-BASIN** - Further subdivision of the Columbia Basin for the Wenatchee N F (Chelan, Entiat, Wenatchee and Yakima Sub-basins).

**SUBWATERSHED** - A part of a whole watershed As used in this Forest plan: the part of a WATERSHED that lies within the boundary of the Wenatchee National Forest.

**SUBSTANTIVE COMMENT** - A comment that provides factual information, professional opinion, or informal judgement germane to the action being proposed

**SUCCESSIONAL STAGE** - A stage or recognizable condition of a plant community that occurs during its development from bare ground to climax For example, coniferous forests in the Blue Mountains progress through six recognized stages grass-forb; shrub-seedling; pole-sapling, young; mature, old growth.

**SUITABILITY** - The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices. (36 CFR 219.3)

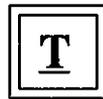
**SUPPLY** - The amount of an output that producers are willing to provide at a specific price, time period, and condition of sale.

**SUPPRESSION** - The action of extinguishing or confining a fire.

**SURFACE RESOURCES** - Renewable resources located on the earth's surface in contrast to ground water and mineral resources located below the earth's surface.

**SURFACE RUNOFF** - Water that flows over the ground surface and into streams and rivers.

**SUSTAINED YIELD OF PRODUCTS AND SERVICES** - The achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the National Forest System without impairment of the productivity of the land. (36 CFR 219.3)



**TARGETS** - Output accomplishments assigned to the Forest by the Forest Service Regional Forester. A statement used to express planned results to be achieved within a stated period of time.

**TEMPORARY ROAD** --Any short-lived road not intended to be a part of the Forest development transportation system and not necessary for future resource management.

**TENTATIVELY SUITABLE FOREST LAND** - Forest land that is capable of producing crops of industrial wood and: (a) has not been withdrawn by Congress, the Secretary, or the Chief; (b) existing technology and knowledge is available to ensure timber production without irreversible damage to soil productivity or watershed conditions, (c) existing technology and knowledge provides reasonable assurance that it is possible to restock adequately within five years after final harvest; and (d) adequate information is available to project responses to timber management activities.

**THERMAL COVER** - Cover used by animals to lessen the effects of weather; for elk, a stand of coniferous trees 12 meters (40 feet) or more tall with an average crown closure of 70 percent or more, for deer, cover may include saplings, shrubs, or trees at least 1.5 meters (5 feet tall) with 75 percent crown closure.

**THREATENED SPECIES** - Any species of animal or plant which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range and which has been designated in the Federal Register by the Secretary of Interior as a threatened species.

**TIERING** - The coverage of general matters in broader environmental impact statements with subsequent, narrower statements or environmental analyses incorporating by reference the general discussions and concentrating solely on specific issues.

**TIMBER CLASSIFICATION** - Forest land is classified under each of the land management alternatives according to how it relates to the management of the timber resource. The following are definitions of timber classifications used for this purpose.

1. **Nonforest**--Land that has never supported forests and land formerly forested where use for timber production is precluded by development or other uses.

2. **Forest**--Land at least 10-percent stocked (based on crown cover) by forest trees of any size, or formerly having had such tree cover and not currently developed for nonforest use.

3. Suitable--Commercial forest land identified as appropriate for timber production in the Forest planning process.

4 Unsuitable--Forest land withdrawn from timber utilization by statute or administrative regulation (for example, wilderness), or identified as not appropriate for timber production in the Forest planning process.

5. Commercial Forest--Forest land tentatively suitable for the production of continuous crops of timber and that has not been withdrawn from timber utilization.

TIMBER MANAGEMENT PLANS (TM PLANS) - Functional resource plans completed in 1963 for the Wenatchee Working Circle and 1969 for the Naches-Tieton Working Circle, which established a timber sale volume to be sold each year. They were not integrated resource plans which considered impacts to all other resources on the Forest.

TIMBER PRODUCTION - The purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use For planning purposes, the term "timber production" does not include production of fuelwood (36 CFR 219.3)

TIMBER STAND IMPROVEMENT (TSI) - The elimination or suppression of the less desirable vegetation in favor of the more desirable tree growth. It includes thinning, cleaning, weeding, and release cuttings.

TOLERANT SPECIES - Plants that grow well in shade.

TOTAL SUSPENDED PARTICULATES (TSP) - Any finely divided material (solid or liquid) that is airborne with an aerodynamic diameter smaller than a few hundred micrometers.

TRANSITORY RANGE - Land that is suitable for grazing use of a nonenduring nature over a period of time For example, on particular disturbed lands, grass may cover the area for a period of time before being replaced by trees or shrubs not suitable for forage.

TURBIDITY - The degree of opaqueness, or cloudiness, produced in water by suspended particulate matter, either organic or inorganic. Measured by light filtration or transmission and expressed in Nephelometric Turbidity Units (NTU).



UNCERTAINTY - Whenever a variety of outcomes are possible and a probability of any specific outcome cannot be assigned with any degree of accuracy.

UNDERSTORY - Vegetation growing under a higher canopy.

UNEVEN-AGED MANAGEMENT - The application of a combination of actions needed to simultaneously maintain continuous high forest cover, recurring regeneration of desirable species, and the orderly growth and development of trees through a range of diameter or age classes. This management must provide a sustained yield of forest products Cutting is usually regulated by specifying the number or proportion of trees of particular sizes to retain within each area, thereby maintaining a planned distribution of size classes. Cutting methods that develop and maintain uneven-aged stands are single-tree selection and group selection. (36 CFR 219.3)

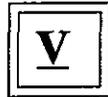
UNIFORM FLOW - A state of steady water flow where the mean velocity and cross sectional area are equal at all sections.

UNREGULATED TIMBER MANAGEMENT - Timber cut from those lands that are not organized to provide sustained yields of timber.

UNROADED ACRES - Those areas of undeveloped Federal land within which there are no improved roads maintained for travel by means of vehicles intended for highway use.

UTILIZATION STANDARDS - Standards guiding the use and removal of timber which is measured in terms of diameter at breast height (d.b.h.), top diameter inside the bark (top d.i.b.), and percent "soundness" of the wood.

UTILITY AND TRANSPORTATION CORRIDORS - A strip of land designated for the transportation of energy, commodities, and communications by railroad, state highway, electrical power transmission (69 KV and above), oil and gas and coal slurry pipelines 10 inches in diameter and larger, and tele-communication cable and electronic sites for interstate use. Transportation of minor amounts of power for short distances, such as short feeder lines from small power projects including geothermal or wind, or to serve customer subservice substations along the line, are not to be treated within the Forest Plan effort.



VARIETY CLASS - A classification system for establishing three visual landscape categories according to the relative importance of the visual features. Those with the most variety of diversity have the greatest potential for high scenic value. The three variety classes are distinctive, common and minimal.

VERTICAL DIVERSITY - The diversity in a stand that results from the complexity of the above ground structure of the vegetation; the more tiers of vegetation or the more diverse the species make up (or both), the higher the degree of vertical diversity. This concept is close to but not exactly the same as "uneven-aged management," although each may influence the other. Application of even-aged management, for example, can be designed to accomplish vertical diversity objectives.

VIABLE POPULATION - A population which has adequate numbers and dispersion of reproductive individuals to ensure the continued existence of the species population on the planning area.

VIEWSHED - The total landscape seen or potentially seen from all or a logical part of a travel route, use area, or water body.

VISITOR INFORMATION SERVICE (VIS) - Activities which interpret for visitors, in layman's language, Forest management, protection, utilization, and research. It also includes interpretation of local botany, geology, ecology, zoology, history, and archaeology.

VISUAL MANAGEMENT SYSTEM - The management system used to protect and enhance the visual resource.

VISUAL QUALITY OBJECTIVES (VQO's) - Categories of acceptable landscape alteration measured in degrees of deviation from the natural-appearing landscape. These categories include Preservation, Retention, Partial Retention, Modification, and Maximum Modification.

VISUAL RESOURCE (FOREST SCENERY) - The composite of basic terrain, geologic features, water features, vegetative patterns, and land-use effects that typify a land unit and influence the visual appeal the unit may have for visitors.

VQO - An abbreviation of visual quality objective.



WATER QUALITY - The biological, physical, and chemical properties of water that make it suitable for given specified uses. Different instream conditions of levels of water quality are needed to support different beneficial uses.

WATER YIELD - The measured output of the Forest's streams.

**WATER YIELD INCREASE** - Additional water released to Forest streams as a result of Forest management activities.

**WATERSHED** - The entire land area that contributes water to a drainage system or stream.

**WETLANDS** - Areas that are inundated by surface or ground water with a frequency sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. (Executive Order 11990.) Under normal circumstances the area does or would support a prevalence of vegetative or aquatic life.

**WFUD'S** - An abbreviation of Wildlife and Fish User Days.

**WILD AND SCENIC RIVERS** - Those rivers or sections of rivers designated as such by congressional action under the 1968 Wild and Scenic Rivers Act, as supplemented and amended, or those sections of rivers designated as wild, scenic, or recreational by an act of the Legislature of the State or States through which they flow. Wild and scenic rivers may be classified and administered under one or more of the following categories:

1. **Wild River Areas**--Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.
2. **Scenic River Areas**--Those rivers or sections of rivers that are free of impoundments, with watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
3. **Recreational River Areas**--Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

**WILDERNESS** - Areas designated by congressional action under the 1964 Wilderness Act. Wilderness is defined as undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation. Wilderness areas are protected and managed to preserve their natural conditions, which generally appear to have been affected primarily by the forces of nature, with the imprint of human activity substantially unnoticeable; have outstanding opportunities for solitude or for a primitive and unconfined type of recreation; include at least 5,000 acres or are of sufficient size to make practical their preservation, enjoyment, and use in an unimpaired condition; and may contain features of scientific, educational, scenic, or historical value as well as ecologic and geologic interest.

**WILDERNESS RECREATION OPPORTUNITY SPECTRUM (WROS)** --The Wilderness Recreation Opportunity Spectrum is an extension of the Recreation Opportunity Spectrum into Wilderness. There are four classes; Pristine, Primitive, Semi-Primitive and Transition. The Primitive and Semi-Primitive WROS classes correspond very closely to the Primitive and Semi-Primitive Non-Motorized classes in ROS. The Pristine WROS class is the most undisturbed, natural portion of a primitive area. The Transition WROS class is essentially a Semi-Primitive WROS class area with greater allowances for social and biological influences of humans.

**WILDFIRE** - Any wildland fire not designated and managed as a prescribed fire within an approved prescription.

**WILDLIFE AND FISH USER DAY (WFUD)** - One WFUD consists of 12 hours of recreation use that is the result of fish or wildlife.

**WINTER RANGE** - The area available to and used by big game through the winter season.

**WITHDRAWAL** - An order removing specific land areas from availability for certain uses.

**WORKING CIRCLE** - A geographic division of the Forest created for administrative or marketing purposes. The Wenatchee Working Circle in the Timber Management (TM) plans includes Chelan, Entiat, Lake Wenatchee, Leavenworth, and Cle Elum Ranger Districts. The Naches-Tieton Working Circle includes the Naches Ranger District.

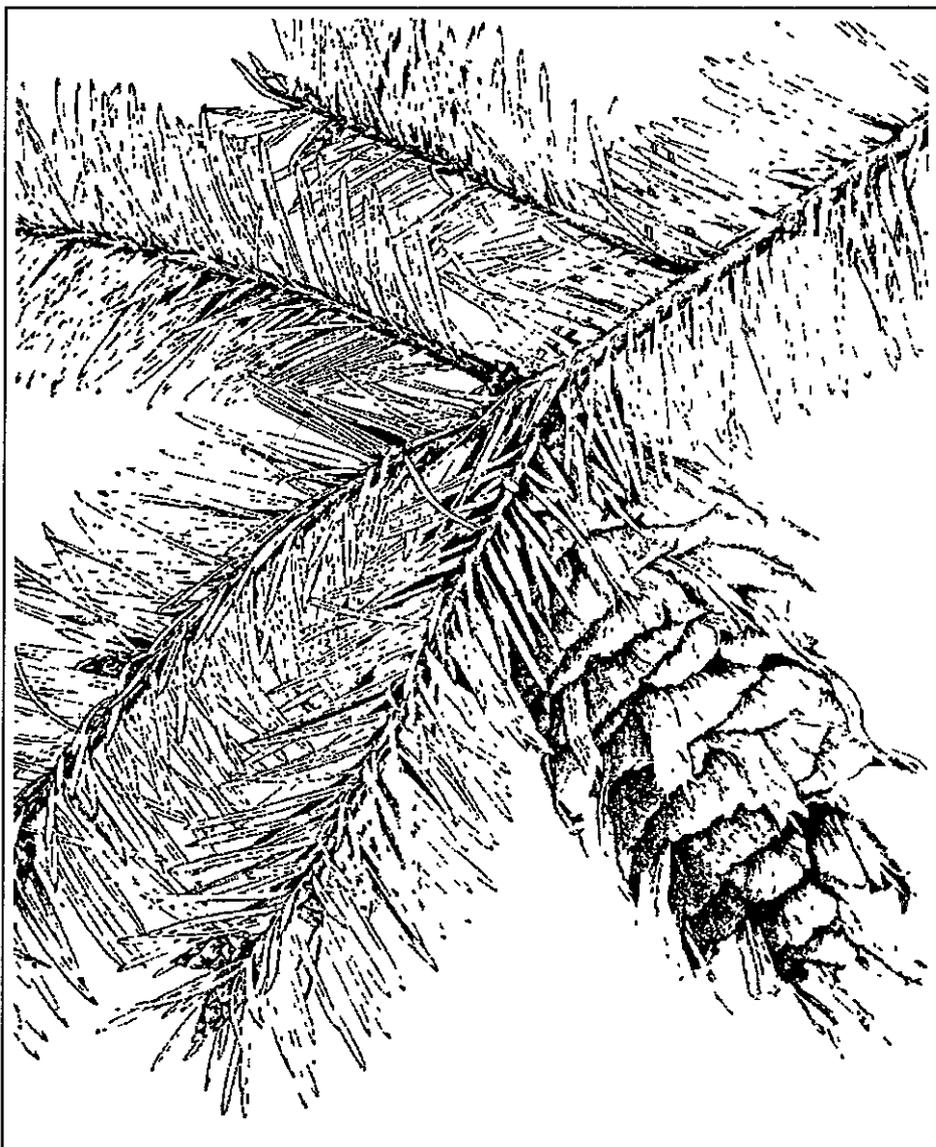
**Y**

**YAKIMA INDIAN TREATY RIGHTS AREA** - Those lands on the Wenatchee National Forest where the Yakima Indian Nation retained certain use rights under Article 3 of the Yakima Indian Treaty of 1855.

**YIELD TABLES** - Tables that estimate the level of outputs that would result from implementing a particular activity, yield tables can be developed for timber volumes, range production, soil and water outputs, and other resources.

**Z**

**ZONE OF INFLUENCE** - The geographic area whose social, economic and/or environmental condition is significantly affected by changes in Forest resource production or management.



## APPENDIX A

The following activity schedules represent a pool of possible projects necessary to achieve the outputs contained in Table IV-2 of Chapter IV. You may note that the outputs projected are not always exactly identical to those in Table IV-1 of this Plan and Alternative C in the FEIS. The differences result from the approximations of the FORPLAN Model as compared to the reality of implementing the objectives of the preferred alternative on-the-ground. However, the schedules do approximate the outputs over the ten year period.

The cost of implementation of these projects in addition to General Administration and monitoring costs approximate the budget required to implement this Plan. If budgets are significantly different than those contained in this Plan, some projects will not be accomplished, which will result in a reduction in expected outputs, and the corresponding objectives of the Plan will not be met.

The project schedules were derived from existing action plans and inventories, and most are accurate for the first three to five years. In some cases, the project list calls for new inventories or resource plans, which will result in new projects and in new priorities. This will necessitate updating the schedules periodically as new inventories and analysis are completed. It is expected that the detailed schedules will require updating annually as a result of the budget process and new action plans.

RECREATION CONSTRUCTION PROJECTS

Region Capital Investment Program 1/

Project Name	District	Construction Cost (in Thousands)	
		First Five Yrs	Second Five Yrs
Boat Launch Extensions	Chelan	356.0	
Cottonwood Campground	Entiat	253.0	
Fields Point Phase III	Chelan	200.0	
Icicle/Lake Wenatchee	Leaven/Lake	117.0	
Kachess Campground	Cle Elum	1,080.0	
Lake Chelan Rec. Sites	Chelan	1,000.0	
Pleasant Valley/Bumping/ Halfway/Lodgepole	Naches	669.0	
Rimrock/Bumping Boat Ramps	Cle Elum	114.0	
Speelyii Beach	Cle Elum	56.0	
Three Creeks Campground	Entiat	162.0	
Wenatchee River Campground	Lake Wenatchee	750.0	
Kaner Flat ORV (IAC)	Naches	240.2	
Rock Creek Horse Camp	Lake Wenatchee	150.0	
Campground Paving	Leavenworth		92.0
Fish Lake Campground	Lake Wenatchee		249.0
Handicapp Facilities	Cle Elum		107.5
River Bend Campground	Lake Wenatchee		100.0
West End Group Site	Leavenworth		222.5
Clear Lake Rec. Site	Naches		325.0
South Navarre Campground	Chelan		57.0
Pine Flat Campground	Entiat		376.0
North Fork Campground	Entiat		318.0
Salmon La Sac Campground	Cle Elum		1,000.0
Tronson/Bonanza	Leavenworth		200.0
Crow Creek Campground	Naches		108.0
Little Naches Campground	Naches		150.0
Longmire Meadow Campground	Naches		125.0
Lost Meadow Campground	Naches		705.5
Quartz Creek Campground	Naches		75.0
South Shore Campground	Chelan		50.0
Antilon Lake Campground	Chelan		50.0
Owhi Campground	Cle Elum		50.0
Peninsula Campground	Naches		50.0
Dog Lake Campground	Naches		125.0
White Pass Horse Camp	Naches		100.0
Milk Pond Campground	Naches		50.0

1/ Does not include cultural resource projects or wilderness rehabilitation projects.

RECREATION CONSTRUCTION PROJECTS

Region Capital Investment Program 1/

Project Name	District	Construction Cost (in Thousands)	
		First Five Yrs	Second Five Yrs
Nile Creek	Naches		50.0
CCC Shelter	Naches		20.0
Holden Campground	Chelan		350.0
25 Mile Cr. Campground	Chelan		100.0
Boston/Mann	Cle Elum		100.0
Crystal Springs Campground	Cle Elum		50.0
Small Campground Rehab	Cle Elum		109.5
Kachess Boat-in Sites	Cle Elum		54 5
Stafford Campground	Cle Elum		60.0
Wild Rose Campground	Naches		200.0
Willows Campground	Naches		50 0
Windy Point Campground	Naches		80.0
Indian Creek Campground	Naches		400.0
Tieton Infor Center	Naches		100.0
American Ridge Rehab.	Naches		65.0
American Forks Campground	Naches		105.0
So. Fork Falls Campground	Naches		140 0
Silver Salmon Cove	Naches		80 0
Horseshoe Cove	Naches		30 0
Crane Pack Campground	Naches		250 0
Naches Campground	Naches		350 0
Chinook Pass WC	Naches		100 0
Clear Lake Water System	Naches		135 0
American Forks Water System	Naches		65 0
Hells Crossing Reconstruction	Naches		200.0
Little Naches Dispersed	Naches		150.0
Bumping River Dispersed	Naches		150.0
Ponderosa Camp	Naches		160.0

1/ Does not include cultural resource projects or wilderness rehabilitation projects

TRAIL CAPITAL INVESTMENT PROGRAM

Project Name	District	Construction Cost (in Thousands)	
		First Five Yrs	Second Five Yrs
Twenty Five Mile	Chelan	134.0	
10M/Company/Devo	Chelan	80.0	
Summit Rehab 11	Chelan	10 0	
S. Shore Day Hike	Chelan	42.0	
North Shore X-C	Chelan	66.0	
South Shore Tr.	Chelan	1,202.0	
Slide Ridge	Chelan	155.0	
Holden Nature	Chelan	83.0	
Bridge I Holden	Chelan	44 0	
Bridge 11 Holden	Chelan	44 0	
S. Shore X-C Ski	Chelan	73 0	
Sawtooth Trails	Chelan	118.0	
Lightening Ridge	Chelan	184.0	
Surprise Lake	Chelan	23.0	
Indianhead	Chelan	60.0	
Muleshoe/Summit	Chelan	122 0	
PCNST Snoq. 11	Cle Elum	113 0	
Koppen Mtn.	Cle Elum	109 0	
County Line	Cle Elum	86 0	
Little Kaches	Cle Elum	53 0	
Rachel Lake	Cle Elum	66.0	
Granite Creek	Cle Elum	88.0	
Sasse Mtn.	Cle Elum	66.0	
Cathedral Rock	Cle Elum	88 0	
W. Fork Teanaway	Cle Elum	79 0	
July Creek	Cle Elum	28.0	
Dutch Miller Gap	Cle Elum	65.0	
Standup Bean	Cle Elum	96.0	
Johnson-Medra	Cle Elum	63.0	
Tamarack Spring	Cle Elum	134 0	
S Boulder-Jolly	Cle Elum	66 0	
Cle Elum Valley	Cle Elum	166 0	
Three Creek Play Tr.	Entiat	19 0	
Mud Cr X-Country Ski	Entiat	54.0	
Entiat X-Country Ski	Entiat	20 0	
Entiat River Exten	Entiat	114 0	
2 Mad River Tr Bridges	Entiat		
Miners Ridge Ext.	Entiat	63 0	
Billy Ridge	Entiat	50.0	
Middle Tommy Tr Bridge	Entiat		
North Tommy Ext	Entiat	47 0	
Three Creeks	Entiat	95.0	
Larch Lakes	Entiat	15 0	
Pyramid Mtn	Entiat	88.0	
North Fork	Entiat	72.0	
Butte Creek	Entiat	50.0	
Silver Falls NRT	Entiat	36 0	
Wilderness Access	Entiat	73 0	

TRAIL CAPITAL INVESTMENT PROGRAM

Project Name	District	Construction Cost (in Thousands)	
		First Five Yrs	Second Five Yrs
Bygone Byways	Lake Wenatchee	20 0	
Sally Ann Route	Lake Wenatchee	35 0	
Indian Creek Lake	Lake Wenatchee	42 0	
Top Lake	Lake Wenatchee	91.0	
Rock Creek	Lake Wenatchee	53.0	
Trinity Reroute	Lake Wenatchee	26.0	
Little Wenatchee	Lake Wenatchee	71.0	
Nason Ridge East	Lake Wenatchee	67.0	
Nason Ridge West	Lake Wenatchee	67.0	
Ethel Lake	Lake Wenatchee	92 0	
Smithbrook	Lake Wenatchee	63.0	
Tumwater Mtn.	Leavenworth	430.0	
Tumwater Canyon	Leavenworth	88.0	
#2 Canyon	Leavenworth	380 0	
Old Icicle	Leavenworth	65 0	
Ingalls Creek	Leavenworth	240 0	
Ingalls Way	Leavenworth	32 0	
Upper Icicle Cr.	Leavenworth	131.0	
Upper Snow Creek	Leavenworth	68.0	
8-Mile/Trout Creek	Leavenworth	162 0	
Jack Creek	Leavenworth	158 0	
Mid Icicle Ridge	Leavenworth	149 0	
Chiwaukum	Leavenworth	205 0	
Painter Creek	Leavenworth	118.0	
Hatchery Creek	Leavenworth	51 0	
French Creek	Leavenworth	184.0	
Upper Colchuck	Leavenworth	37 0	
Twin Fish Swamp	Naches	29 0	
SF Tieton Falls	Naches	190.0	
Sand Ridge	Naches	42.0	
Indian Creek NAC	Naches	48 0	
Rattlesnake	Naches	33.0	
Goose Egg	Naches	37 0	
S. Kloochman	Naches	29.0	
PCNST WP/Culvert	Naches	27 0	
PCNST CH/Culvert	Naches	27 0	
Edgar Rock	Naches	125 0	
Bumping X-Country Ski	Naches	43.0	
Cougar Valley	Naches	32 0	
Crow Lake Way	Naches	32.0	
Dewey Lake Way	Naches	26.0	
Cougar Lake	Naches	33 0	
Mesatchee Tr. & Bridge	Naches	33.0	

TRAIL CAPITAL INVESTMENT PROGRAM

Project Name	District	Construction Cost (in Thousands)	
		First Five Yrs	Second Five Yrs
Summer Blossom	Chelan		<u>1/</u>
Lake Margaret	Cle Elum		
Ridge	Cle Elum		
Wishpoosh CG	Cle Elum		
Gale-Bos	Cle Elum		
Box Canyon	Cle Elum		
Swauk Area	Cle Elum		
Silver Falls Handicap	Entiat		
Shetipo	Entiat		
Pyramid Creek	Entiat		
Garland Peak	Entiat		
Larch Lakes	Entiat		
Duncan Hill	Entiat		
Anthem Creek	Entiat		
Cow Creek	Entiat		
Pugh Ridge	Entiat		
Pomas Creek	Entiat		
Columbia Breaks	Entiat		
Fish Pond Handicap	Lake Wenatchee		
Lillebye/Jellstrip	Leavenworth		
Tronsen CG Loop X-Country	Leavenworth		
Middle Shaser	Leavenworth		
So. Shaser	Leavenworth		
Lower 8 Mile	Leavenworth		
No. Shaser	Leavenworth		
County Line	Leavenworth		
Negro Creek	Leavenworth		
Scotty Creek	Leavenworth		
Mill-Ingall	Leavenworth		
Lower Icicle	Leavenworth		
Beehive	Leavenworth		
Little Camas	Leavenworth		
King Creek	Leavenworth		
Sand Creek	Leavenworth		
Entiat Ridge ORV Tie	Leavenworth		
Lost Creek	Naches		
Pinegrass Way	Naches		

1/ All of these trail projects are planned for the second five year period and construction costs are not estimated

TRAILHEAD CAPITAL INVESTMENT PROGRAM

Project Name	District	Construction Cost (in Thousands)	
		First Five Yrs	Second Five Yrs
South Shore	Chelan	79 0	
North Shore	Chelan	65.0	
Slide	Chelan	80.0	
Holden	Chelan	32 0	
South Shore	Chelan	32 0	
Lightening	Chelan	21.0	
Esmeralda	Cle Elum	52.0	
Standford	Cle Elum	52.0	
Granite Creek	Cle Elum	43.0	
Kachess Ridge	Cle Elum	57 0	
Mirror/Cot	Cle Elum	57.0	
Johnson/Me	Cle Elum	10 0	
Paris/Davis	Cle Elum	57 0	
Mineral	Cle Elum	38 0	
Rachel/Ram	Cle Elum	269.0	
Swauk Corridor	Cle Elum	899.0	
Crystal SN	Cle Elum	74.0	
Taneum Jct	Cle Elum	127 0	
Sno-Park Entiat	Entiat	36.0	
Lake Creek	Entiat	75 0	
Three Creeks	Entiat	275 0	
Maverick	Entiat	114.0	
North Fork	Entiat	125.0	
Top Lake	Lake Wenatchee	20.0	
Little Wenatchee	Lake Wenatchee	19.0	
Smithbrook	Lake Wenatchee	13 0	
Tumwater	Leavenworth	83 0	
#2 Canyon	Leavenworth	82 0	
Ingall/Hat	Leavenworth	140 0	
Icicle/Mis	Leavenworth	139 0	
S F. Falls	Naches	75 0	
M.J.B.	Naches	16.0	
Sand Ridge	Naches	6.0	
Blankship	Naches	50.0	
Sno-Soup/Air Exp	Naches	42 0	
Andy, Kitte	Naches	22 0	
Rattlesnake	Naches	16 0	
Ravens Roost	Naches	60 0	
Goat Creek	Naches	21 0	
Fish Lake	Naches	60.0	

TRAILHEAD CAPITAL INVESTMENT PROGRAM

Project Name	District	Construction Cost (in Thousands)	
		First Five Yrs	Second Five Yrs
Granite Creek	Cle Elum		1/
Stafford Creek	Cle Elum		
Mad River	Entiat		
County Creek	Naches		
Windy Point	Naches		
Thunder Creek	Naches		
Jumpoff Meadow	Naches		
Pinegrass Horse Camp	Naches		
Bumping Lake	Naches		
Quartz Creek & Hillside	Naches		
Colver Spring	Naches		

1/ All of these trailhead projects are planned for the second five year period and construction costs are not estimated

WILDERNESS REHABILITATION

Project Name	District	Construction Cost (in Thousands)	
		First Five Yrs	Second Five Yrs
<b>Wilderness Rehab I</b>			
Cloudy/Lyman	Chelan	10 0	
Sawtooth Shelter	Chelan	10.0	
Cathedral/Squaw	Cle Elum	21.0	
Rachel/Rampart/Lila	Cle Elum	20 0	
Chain/Doelle	Leavenworth	18.0	
Eightmile Lake	Leavenworth	42 0	
TOTAL		121.0	
<b>Wilderness Rehab II</b>			
Blue/Twin Sprs	Chelan	10.0	
Yang/White Rock	Chelan	20.0	
Deep Lake	Cle Elum	8.0	
Hyas Lake	Cle Elum	10.0	
Peggy's Pond	Cle Elum	3.0	
Frosty Pass	Leavenworth	22 0	
Stuart/Colchuck	Leavenworth	22 0	
Lake/Surprise	Naches	3.0	
Rattlesnake	Naches	2 0	
Hindoo Camps	Naches	2.0	
TOTAL		102 0	
<b>Wilderness Rehab III</b>			
Holden Pass	Chelan	15 0	
Pete Lake	Cle Elum	5.0	
Spectacle Lake	Cle Elum	7.0	
Upper Ingals	Leavenworth	22.0	
Cramer/Dumpbell	Naches	5.0	
MJB Elk Camps	Naches	2 0	
TOTAL		56.0	
Surprise Lake	Chelan		4.0
Waptus Lake	Cle Elum		12.0
Upper Park Lake	Cle Elum		20.0
Ridge Lake	Cle Elum		15 0
Entiat Valley	Entiat		10 0
Buck Creek Pass	Lake Wenatchee		16.0
Lake SallyAnn	Lake Wenatchee		15.0
Cradle Lake	Leavenworth		20.0
Dewey Lake	Naches		20.0

WILDERNESS REHABILITATION

Project Name	District	Construction Cost (in Thousands)	
		First Five Yrs	Second Five Yrs
Crow Creek Lake	Naches		15.0
Little Twin/Grassy	Naches		6.0
Tuck/Robin	Cle Elum		8.0
Ivanhoe	Cle Elum		15.0
Ice Creek	Entiat		6.0
Lake Janus	Lake Wenatchee		10.0
Michael Lake	Cle Elum		15.0
Hour Lake	Cle Elum		20.0
Escondido Lake	Cle Elum		20.0
Diamond Lake	Cle Elum		20.0
Twin/Lillian	Cle Elum		4.0
McCall Basin	Naches		10.0
Apple/Pear Lakes	Naches		20.0
Windy/Burnt	Naches		2.0
Augusta/Cabin Basin	Leavenworth		20.0
Chiwakum/Larch	Leavenworth		40.0
Enchantments/Rat	Leavenworth		50.0
Flora/Brigham	Leavenworth		40.0
Josephine/Upper Icicle	Leavenworth		20.0
Klona Qua	Leavenworth		15.0
Caroline/Windy Pass	Leavenworth		15.0
Mirror Lake	Chelan		15.0
Norse Structures	Naches		10.0
Sand/Swamp	Naches		8.0
Shoe Lake	Naches		4.0
Turquoise/Cuitan	Leavenworth		15.0
Lake Valhalla	Lake Wenatchee		8.0
Cougar/Sheep Herder	Naches		20.0

DETAILED SCHEDULE CULTURAL RESOURCES

Activity	Unit of Measure	Units By Year									
		90	91	92	93	94	95	96	97	98	99
<b>INVENTORY</b>											
<b>SURVEYS:</b>											
Timber <sup>1/</sup>	Thousand Acres	40.0	40.0	40.0	40.0	40.0	40.0	35.0	35.0	30.0	30.0
Recreation <sup>2/</sup>	Thousand Acres	2.6	2.1	3.3	2.1	2.0	1.9	2.3	2.1	2.1	2.1
Landownership Adjustment <sup>3/</sup>	Thousand Acres	5.6	8.0	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Cultural Resources <sup>4/</sup>	Thousand Acres	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Other <sup>5/</sup>	Thousand Acres	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<b>SITE RECORDATIONS <sup>6/</sup></b>											
Chelan	Sites	1 ----- Same each year ----->									
Cle Elum	Sites	20 ----->									
Entiat	Sites	1 ----->									
Lake Wenatchee	Sites	5 ----->									
Leavenworth	Sites	3 ----->									
Naches	Sites	20 ----->									
<b>OVERVIEW UPDATES</b>											
	Reports	1					1				
<b>MANAGEMENT PLANS <sup>7/</sup></b>											
Chelan RD											
CCC Picnic Shelters	Plans						1				
CCC Trail Shelters	Plans					1					
Chelan RS	Plans	1									
Cle Elum RD											
CCC Picnic Shelters	Plans						1				
CCC Trail Shelters	Plans					1					
Salmon La Sac GS	Plans		1								
Site Theft Plan	Plans	1									
Entiat RD											
CCC Guard Stations (3)	Plans								1		
CCC Lookouts (3)	Plans				1						
CCC Trail Shelters	Plans					1					
Lake Wenatchee RD											
CCC Campgrounds	Plans						1				
CCC Guard Stations (5)	Plans								1		
CCC Lookouts (10)	Plans				1						
Lake Wenatchee RS	Plans	1									
Site Theft Plan	Plans			1							
Stevens Pass Hist Dist.	Plans	1									
Leavenworth RD											
Chatter Ck GS	Plans								1		
Leavenworth RS & Barn	Plans	1									
Leavenworth Ski Lodge	Plans				1						
Site Theft Plan	Plans		1								
Naches RD											
American Forks GS	Plans								1		
American Ridge Ski Lodge	Plans									1	

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**DETAILED SCHEDULE CULTURAL RESOURCES**

Activity	Unit of Measure	Units By Year									
		90	91	92	93	94	95	96	97	98	99
Naches RD (Cont )											
CCC Picnic Shelters	Plans							1	1		
CCC Trail Shelters	Plans					1					
Naches Pass Trail	Plans		1								
Site Theft Plan	Plans	1									
White Pass GS	Plans								1		
Yakima-Tieton Irr Dist	Plans									1	
<hr/>											
<b>EVALUATIONS</b> <sup>8/</sup>											
Individual Sites	Sites	10	10	10	10	10	11	11	12	12	12
Thematic Evaluations											
Chelan RD											
Lake Chelan Arch Sites	Themes		1								
Cle Elum RD											
Liberty & Swauk Mining	Themes		1								
Lake Wenatchee RD											
Indian/Army Battle Sites	Themes					1					
Indian Cross-Mtn Trails	Themes		1								
Indian Fishing Camps	Themes						1				
Indian Hunting Camps	Themes								1		
Irrigation/Mining Ditches	Themes							1			
Railroad Owens	Themes									1	
Wenatchee R Arch Sites	Themes				1						
Leavenworth RD											
Alpine Lakes Wild Water											
Diversion Sites	Themes								1		
Wenatchee R Arch Sites	Themes					1					
Naches RD											
Naches Drainage Arch Sites	Themes			1				1			
Naches Pass Trail	Themes	1									
Tieton Drainage Arch. Sites	Themes		1					1			
<hr/>											
<b>DATA RECOVERIES/DOCUMENTATIONS</b> <sup>9/</sup>											
Chelan RD											
Moore Point Arch Site	Projects			1							
Refrigerator Harbor Arch	Projects				1						
Cle Elum RD											
Kachess Arch Site	Projects		1								
Speelyl Beach Arch Site	Projects			1							
Lake Wenatchee RD											
Creepo Camp Arch Site	Projects								1		
Fish Creek Arch. Site	Projects				1						
Headwaters Ext Arch. Site	Projects			1							
Island View Arch. Site	Projects							1			
Naches RD											
Crow Creek Arch Site	Projects					1					
Rockshelter Arch Sites	Projects				1		1				

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DETAILED SCHEDULE CULTURAL RESOURCES

Activity	Unit of Measure	Units By Year									
		90	91	92	93	94	95	96	97	98	99
<u>INTERPRETATIONS/REHABILITATIONS</u> 10/											
Chelan RD											
Holden Mine Scale Model	Projects		1								
Lake Chelan 4 Sites Inter.	Projects		1								
Front Office & Display	Projects			1							
Luc./Moore Pt. Inter. Trail	Projects				1						
Lucerne Inter. Center	Projects					1					
Holden Inter. Trail	Projects					1					
CCC Shelters Rehab	Projects						1				
Antilon Lake Inter.	Projects							1			
25 Mile Creek Inter.	Projects								1		
Lookouts (4) Inter.	Projects									1	
First Creek Inter.	Projects										1
Cle Elum RD											
CCC Shelter Rehab.	Projects					1					
Milwaukie RR Inter. Trail	Projects			1							
Salmon La Sac Inter. Center	Projects		1								
Old Blewett Pass Hwy. Inter.	Projects						1				
Liberty GS Inter.	Projects						1				
Entiat RD											
Silver Falls Inter.	Projects			1							
Lake Wenatchee RD											
Bygone Byways Inter. Trail	Projects			1							
Stevens Pass Auto Tour	Projects		1								
Rock Creek GS Reconst	Projects							1			
Face Tree Inter Display	Projects	1									
Wenatchee R. Arch In. Trail	Projects				1						
Front Office Display	Projects			1							
Trapper Inter. Auto Tour	Projects							1			
Trailhead Inter	Projects	1									
Railroad Survey Trails Inter	Projects						1				
CCC Lookouts Inter.	Projects								1		
CCC Rock Ck. GS Inter. Trail	Projects									1	
Leavenworth RD											
Powerhouse Trail Inter.	Projects			1							
Swiftwater Inter.	Projects				1						
Tumwater Inter	Projects				1						
Ski Lodge Inter	Projects				1						
Old Blewett Pass Hwy Inter.	Projects						1				

**DETAILED SCHEDULE CULTURAL RESOURCES**

Activity	Unit of Measure	Units By Year									
		90	91	92	93	94	95	96	97	98	99
Naches RD											
CCC Inter	Projects			1							
Site Protection & Signs	Projects				1						
Trailheads Inter	Projects							1			
CCC Picnic Shelters Rehab.	Projects								1		
Irrigation District Inter	Projects									1	
Prehistoric Sites Inter.	Projects										1
<b>OPERATIONAL COSTS</b>	Thousand \$	40.0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0	40 0

- 1/ Surveys in support of timber should precede, by at least two years, the anticipated timber sell date to allow time to complete any mitigation needed Use 10 year timber sale action plan to schedule surveys and District targets.
- 2/ Surveys are in support of trail construction/reconstruction and construction or expansion of developed recreation sites. Trail corridors include survey of 250 feet either side of centerline Refer to the 10 year schedule of recreation projects to schedule surveys and District targets
- 3/ Surveys are in support of the land exchange program To the extent possible, these should be scheduled 2 years in advance of any particular exchange to allow time to complete any mitigation needed.
- 4/ Surveys that are not tied to project support should emphasize Wilderness and roadless areas since inventory here has been limited to date
- 5/ Surveys are in support of fish habitat improvements, range improvements minerals and special use permit administration
- 6/ This category includes either the recordation of new sites or the revision of currently inadequate site inventories to Regional standards
- 7/ Where functional administrative buildings are involved plans will be coordinated with the District facility operations and maintenance plans
- 8/ Evaluation priorities will be based on a) sites falling within or adjacent to a proposed project area. b) sites easily accessible to the public and hence subject to vandalism, c) sites experiencing various levels of natural degradation; and d) remaining sites By 1990 evaluations will be based on groups of sites for which a common thematic context has been developed
- 9/ Six of these projects are in support of the recreation capital investment construction program; the remaining projects are in conjunction with an archaeological site where there is a substantial threat of vandalism and an archaeological site undergoing substantial river erosion.
- 10/ These projects include interpretation through a variety of media signs, displays, cassette and video tapes, brochures, maps, visitor centers, rehabilitations and even reconstructions

SCENERY MANAGEMENT

Project Name	District	Unit of Measure	Units By Year										
			90	91	92	93	94	95	96	97	98	99	
Visual Analysis Support of Proposed Timber Sales Based on the 10 Year Timber Sale Action Plan	All	Thousand Acres	25	25	25	25	25	25	25	25	25	25	25
Collect and Update Visual Resource Data for Forest Plan Update	All	Thousand Acres						260	260	260	260	260	260
Visual Resource Management Inventory Update	All	Thousand Acres			5	5	5	5	5	5	10	10	10
Recreation Site Planning and Visual Analysis of New or Expanded Developed Recreation Sites	All	Plans	2	1	1	1	1	1	1	1	1	1	1
Developed Campground Vegetative Management Plans for a Safe and Visually Attractive Setting													
Lake Chelan Sites	Chelan	Plans		5	6								
Silver Falls	Entiat	Plans			1								
Cottonwood	Entiat	Plans				1							
Wish Poosh	Cle Elum	Plans					1						
Salmon La Sac	Cle Elum	Plans						1					
Pine Flats	Entiat	Plans							1				
Tumwater	Leavenworth	Plans				1							
Others	All	Plans								1	1	1	1
Viewshed Plans to Provide Direction for Visual Resource Management in Vegetation Manipulation Projects Along Travel Routes *													
Bumping Lake	Naches	Plans	1										
Stevens Pass	Lake Wenatchee	Plans						1					
Icicle Valley	Leavenworth	Plans			1								
Chiwawa River	Lake Wenatchee	Plans		1									
Little Wenatchee	Lake Wenatchee	Plans				1							
Snoqualmie Pass	Cle Elum	Plans							1				
Mather Memorial	Naches	Plans								1			
Cle Elum Valley	Cle Elum	Plans									1		
Shady Pass	Chelan/Entiat	Plans										1	
Little Naches	Naches	Plans											1

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SCENERY MANAGEMENT

Project Name	District	Unit of Measure	Units By Year									
			90	91	92	93	94	95	96	97	98	99
Visual Analysis for Land Exchange (Land Ownership Adjustments)	All	Thousand Acres	9	10.5	5.6	5.6	8	2.4	2.4	2.4	2.4	2.4
Visual Analysis for Resource Projects (Wildlife Range and Minerals)	All	Thousand Acres	5	10	10	10	10	10	10	10	10	10
Visual Analysis for Special-Use Projects. Examples include Hwy-410 Reconstruction and Hwy-2 Widening Project	All	Plans or Cases	6	6	6	6	6	6	6	6	6	6
Visual Management Data Collection and Visual Absorption Capacity Inventory for Wilderness Management		Plans										
Glacier Peak	--			1								
Alpine Lakes	--				1							
Henry M Jackson	Lake Wenatchee				1							
William O Douglas	Naches					1						
Norse Peak	Naches					1						
Goat Rocks	Naches					1						
Chelan-Sawtooth	Chelan						1					
Shady Pass	Chelan/Entiat	Plans										
Little Naches	Naches	Plans										
Trailhead Site Planning		Plans	2	3	3	2	7	5	4	2	1	1

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\* Additional viewsheds on inventory can be drawn from the following list should the need arise or the priority change. These viewsheds are Lake Chelan Railroad Creek Cooper Mountain to South Narraive, French Corral, Mad River, Sugarloaf-Maverick Saddle, Eagle Creek, Chumstick-Plain, Beehive to Swauk Pass, Mission Creek Table Mountain to Reecer Creek, Taneum-Manastash/Quartz Mountain, Ravens Roost, Little Bald, Rattlesnake Creek, Cash Prairie Little Rattlesnake Creek, White Pass, North Fork Tieton, South Fork Tieton, Tieton Road, and Teanaway. There may be other areas that may need a specific plan.

**PLANTS AND ANIMAL HABITAT IMPROVEMENT SCHEDULE**

**FISCAL YEAR**

District and Project	90	91	92	93	94	95	96	97	98	99
<b>Chelan RD</b>										
Wildlife Structures 1/	25	25	25	20	25	25	25	25	25	25
Non-Structures	6	7	7	7	7	100	100	100	100	100
T, E and S Structures	10					2	2	2	2	2
Non-Structures						20	20	20	20	20
<b>Cle Elum RD</b>										
Wildlife Structures	35	25	23	20	25	25	25	25	25	25
Non-Structures	145	145	280	350	350	180	180	180	180	180
T, E and S Structures		2	2	2		2	2	2	2	2
Non-Structures		25	25	25	25	20	20	20	20	20
<b>Lake Wenatchee RD</b>										
Wildlife Structures	30	25	20	28	25	25	25	25	25	25
Non-Structures	307	310	280	415	454	320	320	320	320	320
T, E and S Structures	20	20	20	35	10	20	20	20	20	20
Non-Structures	17	155	19	19	17	50	50	50	500	50
<b>Leavenworth RD</b>										
Wildlife Structures	20	25	20	20	34	20	20	20	20	20
Non-Structures	350	372	280	453	420	320	320	320	320	320
T, E and S Structures	5	10	15	20	10	15	15	15	15	15
Non-Structures	15	15	157	71	17	50	50	50	50	50

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**PLANTS AND ANIMAL HABITAT IMPROVEMENT SCHEDULE**

District and Project	FISCAL YEAR									
	90	91	92	93	94	95	96	97	98	99
<b>Naches RD</b>										
Wildlife Structures	35	25	40	20	36	30	30	30	30	30
Non-Structures	100	150	200	200	200	300	300	300	300	300
T, E and S Structures	15	18	30	30	30	30	30	30	30	30
Non-Structures	5	10	10	10	10	20	20	20	20	20
<b>Entiat RD</b>										
Wildlife Structures	5	25	5	5	5	5	5	5	5	5
Non-Structures	955	711	642	350	400	500	500	500	500	500
T, E and S Structures						1	1	1	1	1
Non-Structures						20	20	20	20	20
<b>FOREST TOTALS</b>										
Structures	200	200	200	200	200	200	200	200	200	200
Non-Structures	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900

1/ Structures include such things as spring developments, gates for blocking roads, nest boxes for various bird species etc. There is a great range in the number of structures required to treat an area and the cost of each structure. Consequently the values for number of structures and costs are highly variable within and between Districts.

FISH HABITAT IMPROVEMENT

Ranger District	Activity Code	Unit	Year									
			90	91	92	93	94	95	96	97	98	99
Entiat (NFWF)  (CWKV)	CF221-1	Struct					20	20		20	20	
	CF221-2	Struct		20	20	20			20	20	20	20
	CF221-1	Struct.						40	15	15	15	15
Chelan (NFWF)	CF221-1	Struct.	20	20	20	20	35		20	20	20	20
	CF222-1	Acres										
Leavenworth (NFWF)  (CWFV)	CF221-1	Struct		30	20	20	20	20	20	20	20	20
	CF221-2	Struct.	30	30	20	20	20	20	20	20	20	
	CF222-1	Acres						5				
	CF221-1	Struct		15	20		15	15	15	15	15	15
	CF221-2	Struct				15						
	CF222-2	Acres				2						
	CF221-1	Struct.			20	10	10	10	20	20	20	20
Lake Wen. (NFWF)  (CWKV)	CF221-2	Struct.	20	30	20	20	20	20	20	20	20	20
	CT221	Struct.		20	10	10	10	10				
	CF221-1	Struct	10	15	20	10	10	20	20	20	20	20
	CF221-1	Struct	15	25	15	20	20	20	20	20	20	20
	CT221-1	Struct		10	10	10	15					
	CF221-1	Struct						20	20	20	20	20
	CF221-2	Struct	23	20	40	40	40	20	20	20	20	20
Naches (NFWF)	CF222-1	Acre	11	6	6		1	1	1	1	1	1
	CF222-2	Acre										

FISH HABITAT IMPROVEMENT

Ranger District	Activity Code	Unit	Year									
			90	91	92	93	94	95	96	97	98	99
(CWKV)	CT221	Struct.		5		3						
	CT222	Struct.			5							
	CF221-1	Struct	10	10	15	20	20	20	20	20	20	20
	CF221-2	Struct.	20	20	20	20	20	20	20	20	20	20
	CF222-1	Acre										
	CF222-2	Acre										
	CT221	Struct.	10	10	10							
Cle Elum (NFWF)	CT222	Struct										
	CF221-1	Struct.	20	20	20	20	20	20	20	20	20	20
	CF221-2	Struct.		20	20	20	20	20	20	20	20	20
	CF222-1	Acre	1					1	1	1	1	1
	CF222-2	Acre										
	CT221	Struct.										
	CT222	Acre										
(CWKV)	CF221-1	Struct	10	10	15	20	20	20	20	20	20	20
	CF221-2	Struct	20	20	20	20	20	20	20	20	20	20
	CF222-1	Acre	10	10	10							

NFWF- Fish habitat improvement projects supported through regular funds.  
 CWKV- Fish habitat improvement projects supported through KV funds.  
 CF221-1 Structural improvements, resident fish.  
 CF221-2 Structural improvements, anadromous fish.  
 CF222-1 Non-Structural improvements, resident fish.  
 CF222-2 Non-Structural improvements, anadromous fish.  
 CT221 Structural improvements, T.E and S. species.  
 CT222 Non-Structural improvements, T.E. and S. species

Proposed Ten Year Timber Sale Schedule  
1990-1999

This appendix provides information on individual planned and proposed timber sales. These sales are at various stages of preparation. For example, some sales for 1990 have all the field work completed while others, especially miscellaneous and salvage sales, may not have any field work done at this time. In general, the farther into the future a sale is scheduled the less complete is the information.

Alternative C, the preferred alternative in the FEIS, has an annual sale quantity volume of 136 MM board feet or 24.3 MM cubic feet. A phase down to this volume is planned during 1990 when 141.7 is proposed. In addition, an approximately 10 mm Bd. ft of firewood, pulp, and other nonchargeable volume is proposed for sale each year.

The FORPLAN model schedules clearcut harvests on 3,433 acres and shelterwood for 2,360 per year in the first decade. The proposed Ten Year Timber Sale Program schedules 2,719 clearcut acres with 2,697 acres seed tree or shelterwood cut (shelterwood and clearcut).

The difference in harvest acres between FORPLAN and the ten-year schedule is due mostly to sanitation salvage and selection harvest or uneven-aged management which are not modeled in FORPLAN.

The management area(s) (allocation) listed is/are the principal area(s) proposed for the sale. Most sales will have minor amounts of riparian allocations included in the sale area.

A summary of proposed sale volume is shown in the following tables.

Maps of the general sale locations are available for review at the Forest Supervisor's Office.

The following are abbreviations used in the Tables:

HCC - Harvest by Clear Cutting	DF - Douglas-fir
SHS - Harvest by Shelterwood Seed Cutting.	AF - Sub-Alpine fir
HPR - Harvest using other Partial Removal methods including final removal of overstory trees, thinning and uneven-aged management selected harvest.	PP - Ponderosa Pine
HFR - Harvest removing all large trees but leaving an understory of young seedlings.	LPP - Lodgepole Pine
ORS - Overstory removal cutting.	PSF - Pacific silver fir
	WH - Western hemlock

10 YEAR TIMBER SALE SUMMARY

Ranger District	Units By Year																			
	90		91		92		93		94		95		96		97		98		99	
	MMBF Volume	Acres	MMBF Volume	Acres	MMBF Volume	Acres	MMBF Volume	Acres	MMBF Volume	Acres	MMBF Volume	Acres	MMBF Volume	Acres	MMBF Volume	Acres	MMBF Volume	Acres	MMBF Volume	Acres
Chelan-Entiat	19.2	1,378	12.0	1,350	12.0	740	12.0	1,700	12.0	905	12.0	980	12.0	1,180	12.0	950	12.0	1,400	12.0	1,950
Cle Elum	34.3	2,222	35.0	1,782	35.0	1,820	35.0	1,595	35.0	1,050	35.0	1,140	35.0	1,700	35.0	1,520	35.0	2,005	35.0	1,705
Lake Wenatchee	30.0	1,391	29.0	958	30.0	1,588	31.0	1,166	31.0	921	30.0	1,140	29.0	903	30.0	1,159	30.0	1,115	30.0	1,178
Leavenworth	9.0	500	9.2	380	9.0	930	8.0	800	9.0	500	9.0	175	9.0	500	9.0	500	9.0	750	9.0	500
Naches	49.5	3,923	49.3	4,312	50.4	3,098	48.2	3,225	49.5	2,930	49.0	3,065	43.5	3,375	48.8	3,436	48.5	3,470	48.5	3,995
TOTALS	142.7	9,414	134.5	8,782	136.4	8,176	134.2	8,486	136.5	6,306	135.0	6,500	128.5	7,658	134.8	7,565	134.5	8,740	134.5	9,328

Proposed sell volume for 1990 is above FORPLAN levels due to Dinkleman fire salvage. The ten-year total equals 1,356.4 MM board feet

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const	Reconst.	
<u>FY 1990 - Entiat &amp; Chelan Ranger Districts</u>							
Tamarack Fire Salvage	T25N, R19E, S 24	HCC HSH	200 450	5.0	0.0	0.0	Salvage of fire killed timber. About 15 DF clearcuts (avg. 13 acres). About 4.0 MMBF helicopter yarding. GF Mgt. area.
Upper Indian Buyback	T26N, R18E, S 12	HCC HFR	142 11	3.7	0.0	0.0	12 AF/LPP/DF clearcuts (avg. 12 acres). Rootrot and decadent stands GF Mgt. area.
Tyee Buyback	T27N, R19E, S20	HCC HFR	124 241	5.6	0.0	0.0	8 DF/PP/GF clearcuts (avg 14 acres) in mistletoe and rootrot infected stands Removal of DF/PP overstory from 80 year old DF pole stands GF Mgt. area.
Berg Creek LPP	T27N, R18E, S3	HCC	120	4.0	1.5	0.0	8-12" LPP for specialty roundwood or refractory chips. Protect hiker trail. About 8 LP clearcuts (avg. 15 acres) in mature 90 year old stands on tractor ground GF Mgt area.
Misc. Small Sales	District Wide	HCC	90	0.9	0.0	0.0	
SUBTOTAL			1,378	19.2	1.5	0.0	
<u>Cle Elum Ranger District</u>							
Willow Gulch	T18N, R15E, S 12-13, 24	HCR	140	4.1	2.4	1.0	EW-1 Management area
Drop Kick	T20N, R18E, S 1-3, 12-13 T21N, R18E, S 34-36	HCC HSH HCR	597 128 116	5.0	3.0	0.0	Ragan High, Drop Creek EW-1 Management area

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TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<u>FY 1990 - Cle Elum Ranger District</u>							
E.Taneum Ridge	T19N, R14E, S 24, 26 T19N, R15E, S 26-28, 30, 32-34	HCC	54	10.4	4.0	0.0	ST-2, OG-2, and GF Management areas.
		HSH	189				
		HCR	104				
		HFR	23				
Upper Hurley	T21N, R17E, S 13, 23-25, 30-31, 36 T21N, R18E, S 17-21, 29-31 T20N, R17E, S 1-2	HCC	70	1.7	1.5	0.5	ST-1, ST-2, and GF Management areas.
		HSH	35				
		HCR	50				
		HFR	81				
Carton	T22N, R12E, S 13-14, 23-24 T22N, R13E, S 19, 30	HCC	73	7.3	6.5	1.5	BOX CANYON GF Management area.
		HSH	170				
		HOR	43				
S.Cle Elum Ridge	T19N, R15E, S 20-24, 13-16, 27-28	HCC	64	3.7	2.0	2.0	ST-2, OG-2, and GF Management area
		HSH	115				
		HTH	22				
		HOR	48				
Salvage		HSV	60	1.5			
Misc.		HSH	40	0.6			
SUBTOTAL			2,222	34.3	19.4	5.0	
<u>Lake Wenatchee Ranger District</u>							
Howard Overwood	T27N, R15E, S 14-15, 21-22, 28.	HCC	97	8.0	2.7	1.6	Sale plans removal of large overstory DF from pole sized true fir understorey GF and ST-2 Mgt. areas.
		HFR	110				

\* NOTE: All Volumes Are Net Merchantable Sawtimber.

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const	Reconst.	
<u>FY 1990 - Lake Wenatchee Ranger District (Continued)</u>							
White Pine	T26N, R15E, S 2, 10-12 T26N, R16E, S 6	HCC	46	8 0	3.7	2.2	Sale visible from US Highway 2 ST-1 and ST-2 Mgt area.
		HSH	138				
		HTH	7				
Maverick	T27N, R18E, S 21, 27-28, 33-34.	HCC	87	10.0	2 2	1.0	Sale area covers steep slopes of Entiat Ridge. Sale is predominantly DF, PP. ST-2 Mgt area.
		HSH	440				
		HFR	66				
District Sales (District Wide)		HTH	250	4.0	0.0	0.0	Salvage and commercial thinning sales
		HCC	50				
		HSV	100				
SUBTOTALS			1,391	30 0	8.6	4.8	
<u>Leavenworth Ranger District</u>							
Rainbow	T24N, R16E, S 6,8 T24N, R15E, S 1	HCC	200	7.7	3.8	0.0	Clearcuts in true fir type Partial cuts in visually sensitive areas. ST-2, and GF.
Cromwell	T25N, R18E, S 5, T26N, R18E, S 32-34	HCC	100	2 0	3.0	0.0	DF clearcuts and PP overstory removal. GF and ST-2
		HFR	200				
SUBTOTAL			500	9.7	6 8	0.0	
<u>Naches Ranger District</u>							
Smokey	T12N, R12E, S 2-3, 9-11	HCC	97	6 5	2.0	0 0	GF Management area.
		HSH/HCR	139				
		HFR	61				
Tenday	T11N, R12E, S 4 T12N, R12E, S 34	HCC	96	7 0	5.6	0.0	GF Management area.
		HSH/HCR	84				

A-25

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
FY 1990 - Naches Ranger District (Continued)							
B.B Brown	T17N, R15E, S 12, 14, 24, 26, 36	HSH/HCR HFR	254 77	3.3	0.0	5.5	GF Management area.
Pine Bluff	T13N, R12E, S 13-15, 22	HCC	163	8.0	0.0	0.0	Area scene from U.S. Hwy. 12. ST-2 Mgt area
	HSH/HCR		203				
Rim	T17N, R13E, S 13, 24	HSH/HCR	184	9.6	7.1	0.0	ST-2 Management area
	T17N, R14E, S 7-8, 17-18	HFR	147				
Final Dry	T15N, R14E, S 1-3	HSH/HCR HFR	5 357	2.0	0.0	0.0	EW-2 Management area
McPlug	T15N, R13E, S 1, 12	HSH/HCR	10	3 0	0.0	0.0	GF Management area.
	T15N, R14E, S 6-9	HFR	400				
		HPR	50				
Pine	T17N, R14E, S 10-11, 13-14, 23-24	HSH/HCR	487	4.5	0 6	0 0	GF Management area
	T17N, R15E, S 18	HFR	83				
Leftover	T15N, R14E, S 25-27, 34-36	HSH/HCR	226	1.5	0.0	0.0	GF Management area.
C.S SSTS	T13N, R13E, S 13-16, 21	HFR	171	0 5	0 0	0.0	Overstory removal in established plantations. GF Management area.
King Louie	T13N, R14E, S 3-4, 9-10	HFR	289	0.5	0 0	0 0	ST-2 Management area
	T14N, R14E, S 27						
Plate	T19N, R11E, S 36	HFR	22	0.2	0 0	0 0	ST-2 Management area.
Fifes	T17N, R13E, S 1	HCC	42	1 4	0.0	0.0	GF and ST-2 Mgt. area.
	T17N, R14E, S 4-6	HFR	137				
	T18N, R13E, S 31						
	T18N, R14E, S 31						
Weddle	T14N R15E S 24, 34	HSH/HCR HPR	49 40	1 2	0 6	0 0	ST-1 and EW-1 Mgt. area.

A-26

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
FY 1990 - Naches Ranger District (Continued)							
Salvage	District-wide	HPR	50	0.3	0 0	0 0	Small salvage sales
SUBTOTAL			3,923	49 5	15.9	5 5	
1990 TOTAL			9,414	142.7	52.2	15 3	

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const	Reconst	
<u>FY 1991 - Entiat &amp; Chelan Ranger Districts</u>							
Undercat LPP	T27N, R18E, S 10	HCC	160	4.0	1.5	0.0	8-12" LPP for specialty roundwood or refractory chips. About 10 LPP clearcuts (avg. 16 acres) in mature 90 year old stands on tractor ground. Protect hiker trail. GF Mgt. area.
High Spud	T27N, R20E, S 29	HCC	140	4.6	9.3	1.4	About 14 DF clearcuts (avg 10 acres) in mistletoe infected stands. Removal of PP overstory from 80 year old DF poles Protect deer fawning habitat Establish fuelbreak, close roads to public use. GF Mgt. area
		HFR	760				
Mud Forest	T27N, R20E S 15	HCC	50	2.9	1.0	0.0	About 5 DF clearcuts (avg 10 acres) in mistletoe and rootrot infected stands. Removal of PP/DF overstory from 80 year old DF pole stands Fuelbreak, close roads to public access GF Mgt.
		HFR	190				
Misc Small Sales	District Wide	HCC	50	0.5	0.0	0.0	
SUBTOTAL			1,350	12.0	11.8	1.4	
<u>Cle Elum Ranger District</u>							
Frostbite	T18N, R15E, S 4, 8, 17-79	HCR	14	5.0	13.2	0.0	Frosty Area ST-1 and GF Mgt. area.
		HSR	160				
		HCC	80				
Easton Ridge	T21N, R13E, S 36	HCC	25	5.0	1.0	0.0	ST-2 Management area.
	T20N, R14E, S 6, 8	HSR	122				
South Tyro	T22N, R13E, S 26	HCC	90	2.8	0.5	0.0	GF and ST-2 Mgt area.

A-28

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst	
<u>FY 1991 - Cle Elum Ranger Districts (Continued)</u>							
Whisper	T22N, R11E, S 3	HCC	9	2.2	0.5	0.0	Roaring Ridge ST-2 Management area.
	T21N, R11E, S 2	HTH	12				
		HSH	54				
Blue Hurley	T21N, R17E, S 11, 14-15,	HCC	380	5.3	3.2	2.8	GF and ST-2 Mgt. area.
	17, 19-21, 27-29, 33	HSH	95				
	T21N, R18E, S 7, 18						
Stafford Bear	T22N, R17E, S 26, 34-36,	HCC	121	4.9	6.5	0.0	Jack Cr. GF Management area.
	30-32; T21N, R16E, S 4	HSH	149				
	T21N, R17E, S 4	HOR	17				
Deer Gulch	T20N, R17E, S 11-15	HSH	63	2.3	3.5	0.0	GF Management area.
		HCC	90				
		HTH	75				
		HCR	14				
Lucky Pierre	T22N, R14E, S 30	HCC	51	5.0	5.2	0.0	French Cabin Cr. ST-2 and GF Mgt. area.
	T22N, R13E, S 34, 36	HSH	86				
	T21N, R13E, S 2, 12						
Salvage		HSV	50	1.9	0.0	0.0	
Misc.		HPR	25	0.6	0.0	0.0	
SUBTOTAL			1,782	35.0	33.6	2.8	
<u>Lake Wenatchee Ranger District</u>							
West Theseus	T27N, R15E, S 8-9	HCC	106	8.1	2.0	0.5	Sale is predominantly DF, WH, and true fir. GF and ST-2 Mgt.
Basalt	T29N, R17E, S 32-33 T28N, R17E, S 5.	HCC	76	9.0	5.6	0.0	Sale previously proposed & appealed due to roadless sensitivity. GF and ST-2
		HSH	24				
		HFR	66				

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<u>FY 1991 - Lake Wenatchee Ranger District (Continued)</u>							
Mad Goose	T27N, R17E, S 7-8	HCC	26	6.0	0.0	1.0	Sale will harvest steep inaccessible ground below Maverick Peak. GF and ST-2
		HFR	180				
		HSH	130				
District Sales (District Wide)		HCC	50	5.9	0.0	0.0	Salvage and commercial thinning sales
		HTH	250				
		HSV	50				
SUBTOTALS			958	29.0	7.6	1.5	
<u>Leavenworth Ranger District</u>							
Tronsen Ridge	T21N, R18E, S 2-4, 11 T22N, R18E, S 26-27, 34-35	HCC	150	6.2	3.5	0.0	Douglas fir and true fir types. ST-2 Mgt area.
		HSH					
Spromberg	T25N, R18E, S 8-9	HCC	80	1.5	0.5	0.0	Clearcuts in diseased DF stands GF Mgt. area.
Sunitch	T25N, R17E, S 1-2, & 11-12	HCC	50	1.5	1.0	1.0	Douglas fir, ponderosa pine type GF and ST-2 Mgt areas
		HFR	100				
SUBTOTAL			380	9.2	5.0	1.0	
<u>Naches Ranger District</u>							
Devil	T15N, R14E, S 9-16, 21-24, 28	HSH/HCR	400	3.0	0.5	0.0	GF and ST-2 Management areas
		HFR	100				
		HPR	50				
Thunder	T14N, R13E, S 25-26 T14N, R14E, S 19-20, 29-30	HSH/HCR	236	2.5	0.0	0.0	GF Management area.
		HFR	122				
		HPR	24				
Kamiakan	T13N, R12E, S 1-3, 9-11, 15-16	HSH/HCR	64	3.9	1.0	0.0	ST-1 Management area.
		HFR	309				
		HPR	82				

A-30

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
FY 1991 - Naches Ranger District (Continued)							
Rimrock	T13N, R13E, S 7-11	HSH/HCR HFR HPR	113 96 60	2.2	0 0	0.0	ST-1 Management area.
Bumpy	T15N, R12E, S 3 T16N, R11E, S 25, 36 T16N, R12E, S 11-14, 23-24, 26-28, 32-35 T16N, R13E, S 6-7	HCC HSH/HCR	100 100	4.8	1.8	1 0	ST-1 and ST-2 Management areas.
Lynne	T14N, R14E, S 1-2, 10-15, 23-24; T14N, R15E, S 2, 4, 6, 8, & 18. T15N, R14E, S 36	HSH/HCR HFR	200 200	4 0	2.0	3.0	GF and ST-2 Management areas.
Withrow	T12N, R12E, S 1, 12-13, T12N, R13E, S 5-8, 17-18, T13N, R13E, S 14-15, 22-23, 32	HSH/HCR	225	4 5	3.0	3.0	GF and ST-2 Management areas
Buttermilk	T17N, R14E, S 1-3, 10-12, T17N, R15E, S 6; T18N, R14E, S 35-36	HCC HSH/HCR HFR	80 200 40	4 5	3.0	1.0	GF and OG-2 Management areas.
Tigger	T18N, R13E, S 1-3, 10-12, 14-15; T19N, R13E, S 30, 36	HCC HSH/HCR	183 90	9 0	5.0	2.0	GF Management area.
Dill	T13N, R14E, S 2-5, 9-11, 16; T14N, R14E, S 26-28, 33-35	HCC HSH/HCR HFR	100 450 50	7.0	0.0	2.0	GF and EW-1 Management areas
Wedgey	T18N, R14E, S 21-22, & 27	HFR	50	0 2	0 0	0 0	GF Management area.
P W Bear	T13N, R13E, S 10, 12, 14-15	HCC	30	0 5	0.0	0.0	Stand is heavily infected with root rot. ST-2 Mgt area.
Larch	T18N, R13E, S 7 & 9	HPR	20	0 1	0.0	0 0	Sale will create a WL seed production area GF Mgt. area.

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const	Reconst.	
FY 1991 - Naches Ranger District (Continued)							
Corral Post	T17N, R13E, S 1; T17N, R14E, S 4-6; T18N, R13E, S 36; T18N, R14E, S 31	HFR	50	0.2	0.0	0.0	GF Management area
Up the Nile	T16N, R13E, S 1, 12-13	HFR	175	0.7	0.0	0.0	GF Management area.
Boo Boo Bear	T12N, R12E, S 1-2, 11-12, 24, 26, T13N, R13E, S 29-31	HFR	183	0.9	0.0	0.0	GF and ST-2 Management areas.
Toe	T16N, R14E, S 26-29	HCC	50	0.8	0.0	0.0	GF and EW-1 Management areas.
Salvage	District-wide	HPR	80	0.5	0.0	0.0	Small salvage sales
SUBTOTALS			4,312	49.3	16.3	12.0	
1991 TOTAL			8,782	134.5	74.3	18.7	

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<u>FY 1992 - Entiat &amp; Chelan Ranger Districts</u>							
James LPP	T27N, R18E, S 9	HCC	150	3.0	1.5	0.0	8-12" LPP for specialty roundwood or refractory chips, about 8 LPP clearcuts (avg. 20 acres) in mature 90 year old stands on tractor ground. GF Mgt. area.
Grade Helo	T30N, R21E, S 31	HCC	100	6.0	5.0	2.0	Protection of critical wildlife habitat. Removal of Pp/DF overstory from 20 and 60 year old DF pole stands. 4.0 MMBF helicopter yarding GF and ST-2
	T28N, R21E, S 31	HFR	140				
Lower Duncan Ridge	T29N, R18E, S 15	HCC	100	2.5	2.0	0.0	Protection of existing hiker trail and trailhead. Partial Retention of existing scenic values along trail. About 18 DF/AF clearcuts (avg 10 acres) in decadent and mistletoe stands. GF and ST-2 Management areas
		HFR	200				
Misc. Small Sales	District Wide	HCC	50	0.5	0.0	0.0	
SUBTOTAL			740	12.0	8.5	2.0	
<u>Cle Elum Ranger District</u>							
Loughorn	T20N, R12E; S30	HCC	100	1.6	2.6	0.0	Log Cr. GF Management area
	T19N, R12E, S2						
	T19N, R13E; S6						
Upper Granite	T20N, R14E, S32	HSH	250	0.2	6.3	0.3	GF and ST-2 Management area.
	T19N, R13E; S12						
	T19N, R14E; S4,6,8,10,14						

A-33

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<u>FY 1992 - Cle Elum Ranger Districts (Continued)</u>							
Blue Divide	T21N R17E; S7-10,15-22	HSB	150	5.0	2.0	0.0	Hovey Area. GF Management area.
		HCC	250				
		HTH	20				
Moondeam	T22N R16E; S36 T22N R17E; S31 T21N R16E; S1,12,13 T21N R17E; S5-8	HCC	100	12.0	0.0	7.0	GF Management area
		HSB	80				
		HCR	120				
Larch	T19N R15E; S35,36 T18N R15E, S1,2,6	HSB	80	1.0	1.0	0.0	Tamarack T S. Area ST-2 Management area.
		HCC	95				
Barrel	T22N R14E; S6,8,16,20 T22N R13E, S2,10,12,14	HCC	250	7.0	5.0		Cooper, Pollalie Ridge ST-2 Management area.
		HSB	200				
		HFR	40				
Sky-Price	T21N R12E, S10,14,24	HCC	65	4.0	1.3		Price Cr., Amabilis Mtn. ST-2 Management area.
		HSB	20				
Salvage				3.5			
Misc				0.7			
SUBTOTAL			1,820	35.0	18.2	7.3	
<u>Lake Wenatchee Ranger District</u>							
Chikaminnow	T28N, R17E, S 4-9, 16-17	HCC	244	11.0	8.9	1.0	Sale is predominantly DF and PP. GF and ST-2 Mgt. areas.
		HSB	230				
Loaf	T26N, R18E, S 2, 10-11, 14	HCC	72	6.0	4.4	3.0	Sale area is on steep slopes of Entiat Ridge below Sugar- loaf Peak GF and ST-2 Mgt. area
		HSB	332				
Upper Chiwawa	T30N, R17E, S 27, 34 T28N, R16E, S 2-3, 11, 14, 23 25-26, & 36	HCC	40	7.0	1.0	7.0	Portion of sale is adjacent to heavily used Chiwawa River Road #62 ST-1 Management area
		HSB	270				

A-34

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks	
		Method	Acres		Const.	Reconst.		
<u>FY 1992 - Lake Wenatchee Ranger District (Continued)</u>								
District Sales (District Wide) SUBTOTAL		HCC	50	6 0	0.0	0.0	Salvage and commercial thinning sales.	
		HTH	300					
		HSV	50					
			1,588	30.0	14.3	11.0		
<u>Leavenworth Ranger District</u>								
Chumstick	T25N, R19E, S 20-22, 28, 29	HCC	190	3.8	1 0	2.0	Douglas fir, ponderosa pine GF Management area	
		HFR	190					
Wedge	T24N, R17E, S 34	HFR	300	1.2	0 0	1 0	Douglas fir, Ponderosa pine overstory removal. GF Mgt area.	
Ruby	T22N, R18E, S 6-8, T22N, R17E, S 12	HCC	150	4.0	1.0	0.0	Douglas fir, Ponderosa pine GF and ST-2 Management areas.	
		HFR	100					
SUBTOTAL			930	9 0	2.0	3.0		
<u>Naches Ranger District</u>								
County	T18N, R11E, S 1-2 & 12, T18N, R12E, S 2-4, 9-10; T19N, R11E, S 36; T19N, R12E, S 34	HCC	133	7.0	1 0	0.0	GF Management area.	
		HSH/HCR	100					
Spiral	T13N, R11E, S 1, T13N, R12E, S 1-5, 11-12, T14N, R12E, S 32-35	HPR	300	3.0	0 0	0.0	ST-1 Management area.	
Cub Scout	T18N, R13E, S 3-5, 9-10; T19N, R13E, S 17-23, 26-30 32-35	HCC	100	4.0	3 0	0.0	GF and ST-2 Management areas.	
		HSH/HCR	50					
		HFR	50					
		HPR	10					

A-35

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
FY 1992 - Naches Ranger District (Continued)							
Buckhorn	T12N, R13E, S 2-3;	HCC	92	7.3	3.0	0.0	GF and ST-2 Management areas.
	T13N, R13E, S 13-14, 23-26	HSH/HCR	160				
	34-36, T13N, R14E, S 19, 30-31	HFR	40				
Quartzite	T18N, R14E, S 10, 14-16, 20-29, 32-34	HCC	100	5.5	1.0	5.0	GF and ST-2 Management areas.
		HSH/HCR	175				
Rock	T16N, R15E, S 4-5; T17N, R15E, S 14, 16, 20-22, 26, 28, 30, 32 & 34	HSH/HCR	150	2.5	1.0	4.0	GF Management area
		HFR	100				
Alder Brush	T18N, R12E, S 11-15, 22-24 T18N, R13E, S 7-10, 14-18, 21-22	HCC	150	5.4	1.5	3.0	GF and ST-2 Management area
		HSH/HCR	58				
		HPR	20				
Intake	T13N, R14E, S 1-2, T14N, R14E, S 23-26, 35-36 T14N, R15E, S 19-22, 28-32	HSH/HCR	100	4.5	1.0	5.0	GF and ST-2 Management area.
		HPR	350				
Bakeovtn	T12N, R13E, S 3-5; T13N, R13E, S 21-22, 27-29	HCC	150	7.0	11.0	0.0	GF and ST-2 Management area.
		HSH/HCR	200				
Purdy	T17N, R14E, S 4-5; T18N, R14E, S 31-33 & 19, T18N, R13E, S 14-15, 23-25, 9-10 & 4-6; T19N, R12E, S 36 & 34 T18N, R12E, S 1-2 & 4	HCC	5	0.5	0.0	0.0	ST-1 Management area.
		HSH/HCR	5				
		HPR	30				
Elderberry	T14N, R15E, S 2, 10, 16, 20	HSH/HCR	200	1.0	0.5	3.0	EW-1 Management area.
Chippie	T17N, R13E, S 11-14, 21-23, 27-28 & 33	HCC	50	1.5	1.5	0.5	ST-1 Management area.
		HSH/HCR	50				
Crane	T13N, R14E, S 5-6, T14N, R13E, S 31-33	HFR	20	0.5	0.0	0.0	
		HPR	50				
White Pass W.C	T14N, R14E, S 28	HPR	10	(0.1)	0.0	0.0	Volume is unregulated

A-36

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
FY 1992 - Naches Ranger District (Continued)							
Chinook Pass W.C.	T17N, R14E, S 35-36	HPR	10	(0 1)	0.0	0.0	Volume is unregulated
Salvage	District-wide	HPR	80	0 5	0.0	0.0	Small salvage sales.
SUBTOTAL			3,098	50.4	24.5	20.5	
1992 TOTAL			8,176	136.4	67.5	43.8	

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
Miners Ridge LPP	T27N, R18E, S 35	HCC	200	3.0	1.0	0.0	8-12" LPP for specialty roundwood or refractory chips About 20 LPP clearcuts (avg. 10 acre) in 90 year old mature stands on tractor ground Partial Retention of scenic values along Entiat Summit Road Protect hiker trail.
Pot Peak	T28N, R20E, S 9	HCC HFR	250 200	3.5	3.0	0.0	Protect hiker trails, Partial Retention of scenic values along Shady Pass Road Removal of PP overstory from 80 year old DF pole stands About 16 DF clearcuts (avg 15 acres) in mistletoe and rootrot infested areas. Access depends on 3.0 miles capital investment road.
Stormy Creek	T27N, R20E, S 6	HFR	1,000	5.0	4.0	2.0	Protect hiker trail, removal of PP/DF overstory from 80 year old DF poles. Includes 3.5 MMBF of helicopter yarding. Right-of-way may be needed for Stormy Creek Road. Access depends on 4.0 miles capital investment road.
Misc Small Sales	District Wide	HCC	50	0.5	0.0	0.0	
SUBTOTAL			1,700	12.0	8.0	2.0	

A-38

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks	
		Method	Acres		Const	Reconst.		
<u>FY 1993 - Cle Elum Ranger District</u>								
Garnet	T21N R18E; S29, 32, 33 T20N R18E, S4, 5, 8, 17, 18, 20	HSB	150	4.0	1.0	1.0	Hawkeye Area	
		HCC	200					
Huck Basin	T23N R14E, S24, 25	HSB	100	4.0	1.0	0.0		
		HCC	50					
Wildcat	T20N R17E, S5, 8-10, 15	HSB	100	3.0				
		HCC	25					
Half Tuck	T20N R14E; S30	HTH	80	2.1	3.0	0.0		Tucker Cr.
		HCC	40					
Little Buck	T18N R15E, S19-23, 25-29, 34, 36	HSB	150	7.0	7.0	0.0		Manastash Area
		HCC	50					
		HCR	100					
Amabilis Point	T21N R13E, S6, 12, 18	HSB	80	3.5	3.0	0.0	Amabilis Mtn.	
		HCC	60					
Beartooth	T20N R12E, S10, 12, 14, 24, 26 T20N R11E; S12, 14	HCC	160	6.0	3.5	0.0	Cabin Cr., Bearpaw Butte	
Diamond Lil	T21N R18E; S12-15, 22-23, 26-27	HTH	80	2.0	2.0	0.0	Mt Lillian, Diamond Head	
		HCC	70					
		HSB	100					
Salvage				3.0				
Misc.				0.4				
SUBTOTAL			1,595	35.0	20.5	1.0		
<u>Lake Wenatchee Ranger District</u>								
Marble Gate	T28N, R17E, S 11, 14-15, 21-24, 26-27.	HCC	349	12.0	9.5	1.0	Most of sale is in roadless area	
Mill Overwood	T26N, R13E, S 12	HSB HFR	220 54	7.0	2.9	3.0	Sale is adjacent to U S Highway 2. Predominately true fir and MH.	

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const	Reconst.	
<u>FY 1993 - Lake Wenatchee Ranger District (Continued)</u>							
River Bottom	T27N, R16E, S 16 & 18 T27N, R15E, S 4, 10-13	HSH	143	7.0	0.3	2.0	Sale is adjacent to Little Wenatchee River. Predominantly DF.
District Sales (District Wide)		HCC HSH HTH	50 50 300	5.0	0 0	0.0	Salvage and commercial thinning sales
SUBTOTAL			1,166	31.0	12.7	6.0	
<u>Leavenworth Ranger District</u>							
Negro	T22N, R17E, S 2 T23N, R17E, S 26, 30	HCC	250	2.0	0 5	0.0	Douglas fir, Ponderosa pine
Camas	T23N, R18E, S 19, 29-30, & 32	HCC	250	2.0	0.0	0.5	Douglas fir, Ponderosa pine
Swauk	T22N, R18E, S 17-21 29	HCC HSH	200 100	4 0	1.0	1.0	Swauk Corridor Plan along hiway 97
SUBTOTAL			800	8 0	1.5	1.5	
<u>Naches Ranger District</u>							
Nile	T16N, R14E, S 10-16 22-25, T16N, R15E, S 18-19 & 30	HSH/HCR HFR	170 100	3 0	0.0	2.0	
Fish	T13N, R13E, S 13 & 24; T13N, R14E, S 5-9 16-21 & 28-30	HCC HSH/HCR HFR HFR	50 350 100 40	7 0	2 0	3.0	
Eleven Day	T12N, R12E, S 13, 24 & 26, T12N, R13E, S 18-20	HCC HSH/HCR	200 115	6 3	2.0	3.0	
Mal	T14N, R13E, S 1 & 12, T15N, R13E, S 25 & 36; T14N, R14E, S 5-7, T15N, R14E, S 19-21, 28-33	HCC HSH/HCR HFR	50 450 100	8 2	1.0	0.0	

A-40

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
FY 1993 - Naches Ranger District (Continued)							
Stained Glass	T16N, R13E, S 13-15, 22-24; T16N, R14E, S 16-21	HCC	50	6.5	1.5	4.0	
		HSH/HCR	300				
		HFR	75				
Pup Tent	T12N, R12E, S 1-3 & 9-12; T12N, R13E, S 6; T13N, R12E, S 36; T13N, R13E, S 20, 29-32	HCC	50	6.5	1.0	3.0	
		HSH/HCR	250				
		HFR	50				
		HPR	75				
Deep Creek	T15N, R11E, S 13, 24-25; T15N, R12E, S 2-5, 8-10, 15-17, 20-21 & 29; T16N, R11E, S 36; T16N, R12E, S 11-14, 23-24, 26-27 & 32-35	HCC	100	5.2	0.0	0.0	
		HSH/HCR	50				
F.A. Bear	T13N, R13E, S 7-18, 20-21, 28-29; T13N, R14E, S 7 & 18	HCC	30	1.0	0.0	0.0	Stand is heavily infected with root rot.
Salvage	District-wide	HPR	100	0.5	0.0	0.0	Small salvage sales.
Misc.	District-wide	HCC	60	4.0	0.0	0.0	4-8 small sales.
		HSH/HCR	80				
		HFR	150				
		HPR	80				
SUBTOTAL			3,225	48.2	7.5	15.0	
1993 TOTAL			8,486	134.2	50.2	25.5	

A-41

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst	
<b>FY 1994 - Entiat &amp; Chelan Ranger Districts</b>							
Busch LPP	T29N, R19E, S 33	HCC	180	3.0	2.0	0.0	6-10" LPP for specialty roundwood or refractory chips, about 18 LPP clearcuts (10 acres) in 90 year old mature stands on tractor ground. Protect trail. Partial Retention of scenic values along Shady Pass Road. Protect special interest values in Pawn Lakes area. Access depends on 3.5 miles of capital investment road.
Overlook	T28N, R20E, S 24	HCC	150	2.0	2.0	1.0	About 10 DF clearcuts (avg 15 acres) in mistletoe and rootrot stands. Removal of DF/PP overstory from DF pole stands Full Retention of scenic values from Lake Chelan
		HFR	150				
North Fork Entiat	T29N, R18E, S 10	HCC	80	2.0	2.0	0.0	8 clearcuts (avg. 10 acres) in rootrotted and decadent stands Removal of PP overstory from 80 year old DF small saw timber stands Full Retention of scenic values along North Fork Trail Protect trailhead. Temporary crossing of river only during low water Protection of wildlife habitat
		HFR	70				
Panther	T27N, R18E, S 11	HCC	225	4.5	2.0	0.0	About 15 DF/AF clearcuts (avg 15 acres) in decadent, root-rotted stands
Misc. Small Sales	District Wide	HCC	50	0.5	0.0	0.0	
<b>SUBTOTAL</b>			<b>905</b>	<b>12.0</b>	<b>8.0</b>	<b>1.0</b>	

A-42

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<u>FY 1994 - Cle Elum Ranger District</u>							
Bakers Acres	T22N R12E; S26.30 T21N R12E; S2	HCC	100	4.0	1.0	0.0	Baker Lake, Keechelus Ridge
Lakeview	T21N R13E, S20.28	HFR HSH	50 50	2.0	0.8	0.0	East Amabilis Area
Cattleguard	T18N R15E; S10.16	HSH HCC	50 10	2.7	1.2	1.0	Manastash Area
First Green	T20N R18E; S18.19.30 T20N R17E; S25	HSH HCC	75 75	0.5	3.5	1.2	First Cr.
Hex	T22N R14E, S28.33.34 T21N R14E; S4	HSH HCC	100 50	3.1	5.3	0.0	Hex Mtn
Tumble Creek	T22N R13E; S4,10,16,22	HCC	150	12.0	3.8	0.0	Tumble & Noname Creeks
Kachess Ridge	T21N R13E, S4,8,10,16, 22,26	HTH HSH	50 50	4.0	2.0	0.8	Kacheast Area
Lone Wolf	T22N R11E; S26.36	HCC HSH	50 50	2.0	1.0	0.1	Wolfe Cr Area
Upper Iron	T22N R17E; S32-34 T21N R17E; S2-5,8-11	HSH HCC	30 100	2.1	4.0	1.0	Iron Cr
Salvage				2.0			
Misc				0.6			
SUBTOTAL			1,050	35.0	22.6	4.1	
<u>Lake Wenatchee Ranger District</u>							
East Chikamin	T28N, R17E, S3-4, 10, 14-15 22-23	HCC	371	13.0	11.0	1.0	Most of sale is in current roadless area.

A-43

**TEN YEAR TIMBER SALE ACTION SCHEDULE**

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks			
		Method	Acres		Const.	Reconst.				
<u>FY 1994 - Lake Wenatchee Ranger District</u>										
Upper Mill	T26N, R14E, S 23-24, 26 T26N, R13E, S 24	HCC	50	4.0	0.9	2.4	Sale may develop new ski opportunities for			
		HFR	50							
West Chiwawa	T28N, R17E, S 6-7, 17-18, 20, 28-29 T28N, R16E, S 1.	HCC	70	10.0	5.5	2.0		Sale would develop new road access on west side of Chiwawa River.		
		HSH	330							
District Sales (District Wide)		HCC	50	4.0	0.0	0.0			Salvage and commercial thinning sales	
		HSV	50							
		HTH	250							
SUBTOTAL			921	31.0	17.4	5.4				
<u>Leavenworth Ranger District</u>										
Johnny Mac	T24N, R16E, S 2, 10, 14, 24 T24N, R17E, S 30, 32, 34.	HCC	100	7 0	0.0	1.0				Possibly some helicopter, visual concerns
		HSH	100							
Fairview	T23N, R19E, S 34	HFR	300	2 0	1 0	0.0	Pine overstory removal			
SUBTOTAL			500	9 0	1.0	1 0				
<u>Naches Ranger District</u>										
Lost Creek	T16N, R14E, S 1-3, 10-12, T17N, R14E, S 22-23, 26-27, 34-36	HSH/HCR	200	2 5	1.0	0.0				
		HFR	100							
Orr	T16N, R13E S 23-26; T16N, R14E, S 19-23 26-30	HCC	50	3 0	0.0	0.0				
		HSH/HCR	150							
Hazy	T13N R12E, S 11-12 T13N, R13E, S 6-8	HSH/HCR	75	2.0	0.0	0.0				
		HPR	100							
Show Horn	T13N, R12E, S 1; T14N, R12E, S 25 &36; T13N, R13E, S 4-6; T14N, R13N, S 29-33	HSH/HCR	160	5 0	0.0	0 0				
		HPR	50							

A-44

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
FY 1994 - Naches Ranger District (Continued)							
Rubescens	T12N, R12E, S 2-3,	HCC	100	5 5	4.0	0.0	
	T13N, R12E, S 13-14, 22-26, 35-36;	HSH/HCR	120				
	T13N, R13E, S 17-20, 30						
Shortstop	T12N, R13E, S 4-5,	HCC	50	5.0	2.4	2.0	
	T13N, R13E, S 21-22, 27-28	HSH/HCR	150				
	32-34						
Rabble	T17N, R13E, S 1-3,	HCC	100	7 0	1.5	3.0	
	T17N, R14E, S 4-6,	HSH/HCR	240				
	T18N, R13E, S 25-27, 34-36,	HFR	50				
	T18N, R14E, S 30-32						
L. Rattlesnake	T14N, R14E, S 1-10;	HCC	50	8.0	1.7	3.0	
	T15N, R14E, S 21-28, 32-36	HSH/HCR	310				
		HFR	100				
		HPR	50				
Whistler	T17N, R13E, S 3-6, 8-10,	HCC	95	7.0	1.5	2.0	
	T18N, R13E, S 27-29, 31-34	HSH/HCR	100				
		HFR	30				
Salvage	District-wide	HPR	100	0.5	0.0	0.0	Small salvage sales
Misc	District-wide	HCC	75	4 0	0 0	0.0	4-8 small sales
		HSH/HCR	75				
		HFR	150				
		HPR	100				
SUBTOTAL			2,930	49.5	12 1	10.0	
1993 TOTAL			6,306	136.5	61.1	21.5	

A-45

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<u>FY 1995 - Entiat &amp; Chelan Ranger Districts</u>							
Basin LPP	T29N, R19E, S 27	HCC	180	3.0	2.0	0 0	6-10" LPP specialty roundwood or refractory chips. About 18 LPP clearcuts (avg. 10 acres) in mature 90 year old stands on tractor ground. Protect special interest values in Pawn Lakes area. Access depends on 2 miles capital investment road construction.
Three Creek Skyline	T29N, R18E, S 21	HCC	100	5.0	6 0	0 0	About 10 DF clearcuts (avg 10 acres) in mistletoe and rootrot infected stands. Full Retention of existing scenic values along Entiat River Road and trails. 3.0 MMBF Longspan downhill yarding helicopter yarding. Protect wildlife habitat along river and planned trail. 6.0 miles capital investment road.
		HFR	400				
Mad Hornet	T26N, R19E, S 5	HCC	150	3 5	5.0	2.0	About 15 DF clearcuts (avg 10 acres) in mistletoe, rootrot and decadent stands. Full Retention of existing scenic values along Mad River Trail. Protect wildlife habitat along river. Removal of PP/DF overstory from 80 year old DF pole stands. 5.0 miles capital investment road.
		HFR	100				
Misc Small Sales	District Wide	HCC	50	0.5	0 0	0 0	
SUBTOTAL			980	12 0	13.0	2 0	

A-46

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<u>FY 1995 - Cle Elum Ranger District</u>							
Little Gale	T22N R12E, S23,24,26 T22N R13E; S19,30	HCC	100	3 0	0.0	0.0	Deferred Part of Carton
Lo Ball	T21N R13E, S30,32	HCC	85	3 0	0.6	0.0	High Top Area
Twilight	T21N R11E; S4	HCC	45	3.0	0 5	0.4	Lost Lake Area
Powerline	T21N R12E; S10,14,22, 26,36	HTH HCC	100 35	4 0	1.1	1.5	Martin T.S. Area
Long Branch	T21N R13E, S12 T22N R14E, S29,32 T21N R14E, S6,8	HFR HCC	75 80	8 0	2.9	0 7	Branch Cr.
Dingbat	T21N R14E, S10,14,16,22, 26,28,36	HTH HCC HSH	100 80 100	4.0	8 2	6.0	
Coaldust	T18N R15E; S14	HCC	40	2 0	0.6	1 0	Coal Bunker
Old Blue	T21N R17E, S1,2,11,12 T21N R18E; S4-6	HFR HCC HTH	120 80 100	5.0	2.5	2.6	Swauk Pass
Salvage				2 5	0.0	0.0	
Misc				0 5			
SUBTOTAL			1.140	35.0	16.4	12.2	
<u>Lake Wenatchee Ranger District</u>							
Indian Knob	T28N, R16E, S 11-14. & 24	HCC HTH	264 142	10 0	4 5	1.0	Most of sale is in current roadless area

A-47

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const	Reconst.	
<u>FY 1995 - Lake Wenatchee Ranger District (Continued)</u>							
Smith	T27N, R14E, S 36.	HCC	96	5.0	1.8	1.0	Sale is predominantly true fir and MH.
	T26N, R14E, S 1-2.	HSH	75				
	T27N, R13E, S 25	HFR	7				
West Snowy	T27N, R15E, S 19, 29-30	HCC	80	6.0	3.2	0.0	Sale is predominantly true fir and MH.
		HFR	34				
Upper Wenatchee	T28N, R13E, S 13, 24-25.	HCC	58	5.0	0.7	0.0	Sale is adjacent to Little Wenatchee River. Predominantly DF and MH.
		HSH	34				
District Sales (District Wide)		HCC	50	4.0	0.0	0.0	Salvage and commercial thinning sales
		HSH	50				
		HTH	250				
SUBTOTAL			1,140	30.0	10.2	2.0	
<u>Leavenworth Ranger District</u>							
Deadhorse	T26N, R17E, S 21, 28 33	HCC	100	5.0	1.5	0.5	Douglas fir, ponderosa pine along hiway 2
Rock Island	T24N, R16E, S 6, T24N, R15E, S 1-3	HCC	75	3.5	0.5	0.0	Visually sensitive, along Icicle
MISC				0.5			
SUBTOTAL			175	9.0	2.0	0.5	
<u>Naches Ranger District</u>							
Old Crow	T18N, R12E, S 13 & 24; T18N, R13E, S 14-30, T18N, R14E, S 30	HCC	100	10.0	1.5	0.0	
		HSH/HCR	200				
		HFR	417				
		HPR	100				
Hause	T14N, R14E, S7-10, 14-23 26-28	HSH/HCR	330	7.0	0.0	0.0	

A-48

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<b>FY 1995 - Naches Ranger District (Continued)</b>							
Conrad	T11N, R12E, S 2, 4, 9-10, T12N, R12E, S 12-14, 22-23, 26, 28 & 34	HCC	100	7 0	1.5	2.0	4-8 Small Sales
		HSH/HCR	130				
Little	T16N, R13E, S 1-2, 10-15; T16N, R14E, S 3-10, 16-18, T17N, R14E, S 32-35	HCC	50	5.0	1.0	3.0	
		HSH/HCR	280				
Have a Heart	T13N, R13E, S 1-4, T14N, R13E, S 21, 25-28, 33-36, T14N, R14E, S 30-31	HCC	90	5.0	1.3	0.0	
		HSH/HCR	200				
Timmy	T18N, R12E, S 1-2, 11-12; T18N, R13E, S 5-9	HCC	175	7.0	2.0	0.0	
		HSH/HCR	68				
		HFR	33				
		HPR	150				
Slowout	T19N, R12E, S13-15, 22, 24, 26 & 36 T19N, R13E, S 18 & 30	HCC	70	3.5	2.0	3.0	
		HSH/HCR	64				
		HFR	28				
Salvage	District-wide	HPR	100	0.5	0.0	0.0	
Misc.	District-wide	HCC	60	4.0	0.0	0.0	
		HSH/HCR	80				
		HFR	160				
		HPR	80				
<b>SUBTOTAL</b>			3,065	49.0	9.3	8.0	
<b>1995 TOTAL</b>			6,500	135.0	50.9	24.2	

A-49

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const	Reconst.	
<u>FY 1996 - Entiat &amp; Chelan Ranger Districts</u>							
Tommy LPP	T28N, R18E, S 3	HCC	180	3.0	2.0	1.0	6-10" LPP for specialty roundwood or refractory chips About 18 clearcuts (avg. 10 acres) in mature 90 year old stands, on tractor ground. Protect trailheads. Scenic Retention along valley. Access depends on 2.0 miles capital investment road
Windy Camp	T28N, R20E, S 34	HCC	100	2.5	3.0	1.0	About 10 AF/DF clearcuts (avg 10 acres) Removal of DF/PP overstory from 80 year old DF pole stands Partial Retention of existing scenic values from trail.
		HFR	150				
Ridge Tyee	T27N, R19E, S 28	HCC	200	4.0	2.0	0.0	About 15 DF clearcuts (avg 13 acres) in mistletoe infected stands. Removal of PP overstory from 80 year DF pole stands. Full Retention of scenic values along Mad River Trail.
		HFR	100				
Tiny Bisping	T26, R20E, S 15	HCC	50	2.0	3.0	1.0	Removal of PP overstory from 80 year DF pole stands About 5 DF clearcuts (avg 10 acres) in mistletoe infected stands. Protection of wildlife habitat Survey property lines. Access depends on 3.0 miles of capital investment road.
		HFR	350				
Misc. Small Sales	District Wide	HCC	50	0.5	0.0	0.0	
SUBTOTAL			1,180	12.0	10.0	3.0	

A-50

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<u>FY 1996 - Cle Elum Ranger District</u>							
Big Red	T22N R13E; S24,26	HFR	100	3.0	3.8	1.5	Red Mtn.
	T22N R14E, S30	HCC	50				
Mac' Pond	T21N R11E; S10	HCC	65	3.0	0.5	0.0	Lost View
Hard Rock	T19N R14E, S4,10	HCC	100	4.0	1.0	0.0	Granite Area
	T20N R14E; S32	HFR	120				
Ozzie	T19N R15E, S22-27	HFR	80	2.0	1.0	1.0	Osborn Point
		HCC	150				
		HSH	85				
Rampart	T22N R11E; S14,24	HSH	50	4.0	2.0	0.0	Ski View
		HCC	50				
Stirrup	T21N R11E; S8,14,16,22	HCC	300	5.0	1.0	0.5	Meadow Creek
Honker	T19N R15E, S25-27,34-36	HFR	100	4.0	0.5	0.5	Gooseberry
		HSH	200				
		HCC	50				
Lion Ridge	T21N R18E; S19 T21N R17E, S24,27,34,35 T20N R17E; S23	HFR	50	4.0	3.0	1.0	Sandstone
		HSH	50				
		HCC	50				
Tacoma Cabin	T21N R12E, S34 T20N R12E; S2,12	HCC	50	2.0	0.5	0.0	Cabin Ridge
Salvage				3.0			
Misc				1.0			
SUBTOTAL			1,700	35.0	13.3	4.5	
<u>Lake Wenatchee Ranger District</u>							
High 14	T28N, R14E, S 23-26.	HCC	68	6.0	2.5	0.0	Sale is predominantly true fir and MH.
		HSH	142				
		HFR	48				

A-51

**TEN YEAR TIMBER SALE ACTION SCHEDULE**

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst	
<u>FY 1996 - Lake Wenatchee Ranger District (Continued)</u>							
Fish Fall	T28N, R13E, S 23-26	HCC	145	17.0	6.3	1.1	Sale would harvest old growth stands from area that is currently roadless.
		HFR	100				
District Sales (District Wide)		HCC	50	6.0	0.0	0 0	Salvage and commercial thinning sales
		HSV	50				
		HTH	300				
SUBTOTAL			903	29.0	8.8	1 1	
<u>Leavenworth Ranger District</u>							
Little Chumstick	T26N, R18E S8,9,17,18	HCC	150	2 5	0.0	1.0	Douglas fir
Tumwater	T24N, R17E, S2	HCC HSH	50 150	2 0	0 5	0.0	Douglas fir, visuals
Rag	T22N., R19E, S20-22, 28	HCC HFR	50 200	4.0	2.0	0 0	Ponderosa Pine overstory Removal
MISC				0.5			
SUBTOTAL			700	9.0	2 5	1.0	
<u>Naches Ranger District</u>							
Copper City	T15N, R11E, S 13, 24-25; T15N, R12E, S 2-5, 8-10, 15-17, 20-21 & 29; T16N, R11E, S 36, T16N, R12E, S 11-14, 23-24, 26-27 & 32-35	HCC	100	5.0	2.0	5 0	
		HSH/HCR	50				
Manastash Ridge	T16N, R15E, S 1-4, 10-15, 23-26, 35-36, T17N, R15E, S2, 10, 12, 14, 24 26, 36	HCC	60	5.0	0 5	2 0	
		HSH/HCR	150				
		HFR	220				
		HPR	100				
No Sweat	T16N, R14E, S 23-36, T15N R14E S 1-4; T16N, R15E S 30-31	HCC	50	3 0	0 0	0.0	
		HSH/HCR	100				
		HFR	150				

A-52

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<u>FY 1996 - Naches Ranger District (Continued)</u>							
Longmire	T18N, R13E, S 11-14, 23-24; T18N, R14E, S 4-9, 16-21, 29 & 30	HCC	100	7.0	1 0	0 0	
		HSH/HCR	160				
		HFR	100				
Weddle II	T14N, R15E, S 24, 26, 34, 36	HCC	30	2 0	0 0	0 0	
		HSH/HCR	100				
		HFR	20				
Cedar	T17N, R13E, S 12-13, 24; T17N, R14E, S 4-5, 7-9, 17, 18	HCC	150	7 0	1 5	1 0	
		HSH/HCR	200				
Cliffdell	T16N, R13E, S 1-2, T17N, R13E, S 24-25, 36; T16N, R14E, S 6; T17N, R14E, S 4, 8-9, 15-22, 26-34	HCC	130	7 0	0 0	0 0	
		HSH/HCR	200				
		HFR	75				
Big Rattlesnake	T15N, R14E, S 1-4, 9-17, 21-24, 28	HSH/HCR	450	8.0	0.0	0.0	
		HFR	200				
Salvage	District-wide	HPR	100	0.5	0.0	0.0	Small salvage sales
Misc.	District-wide	HCC	60	4.0	0.0	0 0	4-8 small sales.
		HSH/HCR	80				
		HFR	160				
		HPR	80				
SUBTOTAL			3,375	43.5	3 0	3.0	
1996 TOTAL			7,858	128.5	37 6	12.6	

A-53

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const	Reconst	
<u>FY 1997 - Entiat &amp; Chelan Ranger Districts</u>							
Duncan LPP	T29N, R18E, S 4	HCC	200	3 0	2 0	0 0	6-10" specialty roundwood or refractory chips. About 20 LPP clearcuts (avg. 10 acres) in mature 90 year stands on tractor ground. Partial Retention of scenic values along Duncan Ridge Trail. Protect trail and trailhead
Mad Alma	T27N, R18E, S 25	HCC	250	4.5	4 5	1 0	About 25 DF clearcuts (avg. 10 acres) in mistletoe and rootrot infected stands. Full Retention of existing scenic value along Mad River Trail Protect wildlife habitat along river Access depends on 4 5 miles of capital investment road.
		HFR	50				
Sheep Creek	T29N, R18E, S 13	HCC	400	4.0	3 0	1.0	Full Retention of scenic values along Valley Road. About 30 DF/AF clearcuts (avg. 13 acres) in decadent stands.
Misc. Small Sales	District-wide	HCC	50	0 5	0 0	0 0	
SUBTOTAL			950	12.0	9 5	2 0	
<u>Cle Elum Ranger District</u>							
Last Resort	T22N R11E; S36	HCC	80	3.0			Resort Creek Area
Hawkins Camp	T23N R14E, S13,14,24 T23N R15E, S17-21,28-30	HSH	100	5.0			Hawkeye Area
		HCC	100				
Garrison	T20N R18E S26,27, 31-33,34,35	HCC	200	3 0			Willie Area
		HFR	50				

A-54

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<u>FY 1997 - Cle Elum Ranger Districts</u>							
North Face	T19N R15E; S14,16,18	HCC	100	5.0			Last Chance, Boundary Area
		HSH	150				
Scatter	T23N R14E; S2	HSH	45	1.0			Scatter Cr.
		HFR	30				
Little Sac	T22N R14E; S14,22	HSH	85	3.0			Salmon La Sac Cr.
		HCC	40				
Red Rock	T21N R16E; S12,13,24,25 T21N R17E; S18,19,30,31 T20N R17E, S5,6	HSH	90	3.0			West Red Area
		HCC	40				
Teanaway Fork	T22N R15E; S10,11,13,14 23,24 T22N R16E, S19	HCC	20	1.0			Jungle Cr , Teanaway Area
		HSH	20				
		HTR	20				
Wallbanger	T18N R15E; S12,13,24	HCR	100	3.0			Willow Gulch Area
		HCC	50				
North Mole	T19N R14E, S24,26,36 T18N R14E; S1,2 T19N R15E; S26-28,30 32,33	HSH	100	4.0			Taneum Ridge Area
		HCC	100				
Salvage				3.0			
Misc.				1.0			
<b>SUBTOTAL</b>			<b>1,520</b>	<b>35.0</b>			

A-55

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<u>FY 1997 - Lake Wenatchee Ranger District</u>							
Shoofly	T28N, R13E, S 25, & 35-36 T27N, R13E, S 2.	HCC	87	12 0	2 8	2.4	Sale is predominantly DF, MH and Cedar
		HSH	125				
		HFR	19				
High Canyon	T28N, R15E, S 23 & 25	HCC	151	7.0	0 0	0.0	Sale is predominantly DF and true firs
		HTH	30				
		HSH	40				
Natapoc	T26N, R17E, S 2-3, 10-11, 14 & 15. T27N, R17E, S 35 & 36.	HCC	125	5.0	2.2	0.0	Portions of sale area may be visible from Plain.
		HFR	29				
		HSH	56				
		HTH	97				
District Sales (District Wide)		HCC	100	6.0	0.0	0 0	Salvage and commercial thinning sales
		HSV	100				
		HTH	200				
SUBTOTAL			1,159	30.0	5 0	2 4	
<u>Leavenworth Ranger District</u>							
Sand Creek	T22N, R17E, S 10, 14-15	HCC	150	4.5	2.5	0 0	Douglas fir, ponderosa pine
		HFR	50				
Douglas	T26N, R18E, S 20-21, 29	HCC	200	4.5	1.5	1.0	Douglas fir, Ponderosa pine
		HFR	100				
SUBTOTAL			500	9 0	4 0	1.0	
<u>Naches Ranger District</u>							
North Basin	T18N, R11E, S 1-2	HCC	52	1 3	2.0	0.0	
Windy Gap	T19N, R11E, S 14, 22, 24, 26, 34 & 36; T19N, R12E, S 12, 26, 34	HCC	160	9.0	4 5	2 0	
		HSH/HCR	200				
Bluff	T13N, R12E, S 13-15, 22	HSH/HCR	250	5.0	1 0	0 0	
		HFR	50				
		HPR	200				

A-56

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<b>FY 1997 - Naches Ranger District</b>							
Mac	T15N, R13E, S 1-2, 12; T15N, R14E, S 4-10, 16-17, 20	HSH/HCR	200	5.0	0.0	0.0	
		HFR	100				
		HPR	100				
Panther Ridge	T18N, R13E, S 1-3, 10-12, 14 & 15, T19N, R13E, S 30, 36	HCC	100	6.0	1.5	1.0	
		HSH/HCR	115				
		HFR	89				
		HPR	40				
Pinus	T17N, R14E S 10-15, 23-26, 36, T17N, R13E, S 30 & 36	HCC	50	5.0	0.0	0.0	
		HSH/HCR	175				
		HFR	50				
View	T13N, R13E, S 7-11	HSH/HCR	100	3.0	0.0	0.0	
		HPR	200				
Pebble	T16N, R15E, S 4-5; T17N, R15E, S 14, 16, 20, 22, 26, 28, 30, 32 & 34	HSH/HCR	300	5.0	0.0	0.0	
		HFR	125				
Discovery Creek	T12N, R12E, S 1, 12, 13, T12N, R13E, S 4-8, 17-20; T13N, R13E, S 32	HCC	50	5.0	1.5	1.0	
		HSH/HCR	150				
		HFR	100				
Salvage	District-wide	HPR	100	0.5	0.0	0.0	
Misc.	District-wide	HCC	60	4.0	0.0	0.0	4-8 small sales.
		HSH/HCR	80				
		HFR	160				
		HPR	80				
<b>SUBTOTAL</b>			<b>3,436</b>	<b>48.8</b>	<b>10.5</b>	<b>4.0</b>	
<b>1997 TOTAL</b>			<b>7,565</b>	<b>134.8</b>	<b>(29.0)</b>	<b>(9.4)</b>	

A-57

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const	Reconst.	
<u>FY 1998 - Entiat &amp; Chelan Ranger Districts</u>							
Miners Creek LPP	T27N, R18E, S 27	HCC	200	3.0	1.0	0.0	8-12" LPP for specialty roundwood or refractory chips. About 20 LPP clearcuts (avg. 10 acres) in 90 year old mature stands on tractor ground. Partial Retention of scenic values along Entiat Summit Road. Protect hiker trail.
Big Creek	T29N, R19E, S 22	HCC	650	5.0	6.0	2.0	About 40 DF clearcuts (avg. 15 acres) in decadent stands Partial Retention of scenic value along Shady Pass Road. Access depends on 6.0 miles of capital investment road.
Upper Lake	T29N, R19E, S 34	HCC	500	3.5	3.0	1.0	About 30 DF clearcuts (avg. 11 acres) in mistletoe infected stands. Protect hiker trails Access depends on 3.5 miles of capital investment road. Partial Retention of scenic values along trails
Misc. Small Sales	District-wide	HCC	50	0.5	0.0	0.0	
SUBTOTAL			1,400	12.0	10.0	3.0	
<u>Cle Elum Ranger District</u>							
Boxcar	T22N R12E, S13 T22N R13E, S18-20	HCC HSH	175 100	8.0			Carton, Box Skyline
Upper Mineral	T21N 17E; S13,17,19-30, 33-36 T21N 18E; S18-20,29-31	HCR HSH	200 250	4.0			Blue Hurley-Upper Hurley

A-58

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const	Reconst	
<u>FY 1998 - Cle Elum Ranger Districts</u>							
Freezeout	T18N R15E; S4,8,17-19	HCR	100	3 0			Frostbite
		HSH	150				
North Thorp	T22N R13E, S26	HFR	65	1 5			Thorp Creek
Dropoff	T21N R18E; S34-36 T20N R18E; S1-3,11-14	HFR	100	3.0			Dropkick
		HCC	100				
		HTH	100				
South Easton	T20N R14E; S6,8	HSH	80	2.0			Easton Ridge
		HCC	20				
West Roaring	T22N R11E; S34 T21N R11E; S2	HSH	65	2 0			Whisper
Jack Staff	T22N R17E, 26,30-32, 34-36. T21N R16E, S4 T21N R17E; S5,6	HCC	100	3.0			Staff-Bear
		HSH	100				
Half Moon	T22N R16E; S36 T22N R17E; S31 T21N R16E; S1,12,13 T21N R17E; S5-8	HCC	100	5.0			Moonbeam
		HCR	100				
		HSH	100				
Salvage				3.0			
Misc				0.5			
SUBTOTAL			2,005	63.5			
<u>Lake Wenatchee Ranger District</u>							
Butcher	T26N, R16E, S 1-2 T27N, R16E, S 36.	HCC	26	4 0	0.3	3.7	Portion of sale is visible from US Hwy 2 Predominantly DF and PP.
		HFR	220				

A-59

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<u>FY 1998 - Lake Wenatchee Ranger District (Continued)</u>							
Upper Theseus	T27N, R15E, S 5-9, 16-17, & 20.	HCC HFR	280 49	17.0	10.0	0.0	Most of sale is in current roadless area.
Rainy Pass	T27N, R13E, S 25 T27N, R14E, S 25-26, 35, & 36	HCC HFR	93 47	5.0	2.6	0.0	
District Sales (District Wide)		HCC HSV HTH	100 100 200	4.0	0.0	0.0	Salvage and commercial thinning sales
SUBTOTAL			1,115	30.0	12.9	3.7	
<u>Leavenworth Ranger District</u>							
Dry Creek	T26N, R18E S 23-24, 14-15	HCC HFR	100 50	3.0	1.5	0.0	Douglas fir, Ponderosa pine
Scotty Rdg.	T22N, R18E, S 19-20	HFR	300	3.0	0.0	0.0	Ponderosa pine, Douglas fir
Williams	T24N, R18E, S 1-2, 12, 14	HCC	300	3.0	0.0	0.0	
SUBTOTAL			750	9.0	1.5	0.0	
<u>Naches Ranger District</u>							
Upper Quartz	T18N, R14E, S 10, 14-16, 20-29, & 32-34	HCC HSH/HCR HFR	90 200 300	7.0	2.0	1.0	
Boomer	T14N, R13E, S 13, 24-26 T14N, R14E, S 18-20, 28-30	HSH/HCR HFR HPR	130 150 20	3.0	0.0	1.5	
Soda Springs	T17N, R13E, S 11-14, 21-23, 27-28, & 33	HCC HSH/HCR HPR	80 100 80	3.0	1.5	0.0	

A-60

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const	Reconst.	
<b>FY 1998 - Naches Ranger District (Continued)</b>							
Bear Canyon	T14N, R15E, S 2, 10, 16, 20	HSH/HCR HFR	170 80	3.0	0 0	1.5	
Chief	T13N, R12E, S 1-3, 9-11, 15, 16, 20-21, 28-29, 32	HCC HSH/HCR HFR HPR	40 120 40 80	3.0	0.0	1.0	
Little Lynn	T14N, R14E, S 1-2, 10-15, 23 & 24, T14N, R15E, S 2, 4, 6, 8 & 18, T15N, R14E, S 36	HCC HSH/HCR HFR	95 100 100	4.0	2.0	1.5	
Nalley	T13N, R14E, S 2-5, 9-11, 15 & 16; T14N, R14E, S 26-28, & 33-35	HCC HSH/HCR	75 175	5 0	3.0	0.0	
Alnus	T18N, R12E, S 11-15 & 22-24 T18N, R13E, S 7-10, 14-18, 21-22	HCC HSH/HCR HPR	100 100 50	5 0	2.0	0.0	
Divide Ridge	T12N, R13E, S 2-3; T13N, R13E, S 13-14, 23-26 34-36; T13N, R14E, S 19, 30-31	HCC HSH/HCR HFR HPR	80 100 75 30	5.0	2 5	1.0	
County II	T18N, R11E, S 1-2, 12, T18N, R12E, S 2-4, 9-10; T19N, R11E, S 36; T19N, R12E, S 34	HCC HSH/HCR HFR	100 60 40	5.0	1.0	0.0	
Salvage	District-wide	HPR	100	0.5	0.0	0.0	Small salvage sales
Misc.	District-wide	HCC HSH/HCR HFR HPR	90 80 160 80	5.0			5-10 small sales.
<b>SUBTOTAL</b>			<b>3,470</b>	<b>48 5</b>	<b>14 0</b>	<b>7.5</b>	
<b>1998 TOTAL</b>			<b>8,740</b>	<b>134 5</b>	<b>(38 4)</b>	<b>(14.2)</b>	

A-61

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst	
<u>FY 1999 - Entiat &amp; Chelan Ranger Districts</u>							
Upper Big Creek LPP	T29N, R19E, S 26	HCC	200	.3.0	2.0	0 0	6-10" LPP for specialty roundwood or refractory chips. About 15 LPP clearcuts (avg. 13 acres) in mature 90 year old stands. Partial Retention of existing scenic values along Shady Pass Road Access depends on 2 0 miles of capital investment road.
McKenzie	T26N, R19E, S 2	HCC	100	3.5	0 0	1 0	About 10 DF clearcuts (avg 10 acres) in mistletoe infected stands Removal of DF/PP overstory from 80 year DF pole stands. Full Retention of scenic value along Mad River Trail.
		HFR	900				
South Tommy	T28N, R18E, S 15	HCC	500	5.0	4.0	1 0	About 30 DF clearcuts (avg 15 acres) in mistletoe infected stands Remove DF/PP overstory from 90 year old DF poles. 2 0 MMBF helicopter yarding Full Retention of scenic values from hiker trail. Protect trails Access depends on 4 0 miles of capital investment road.
		HFR	200				
Misc. Small Sales	District-wide	HCC	50	0 5	0 0	0.0	
SUBTOTAL			1.950	12 0	6.0	2.0	

A-62

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
<u>FY 1999 - Cle Elum Ranger District</u>							
Upper Lodge	T21N R12E; S12	HCC HSH	40 40	3.0			N.Amabilis
Hicks	T19N R14E, S10	HCC HSH	75 75	2.0			Upper Granite
Snowshoe	T21N R18E; S29,32,33 T20N R18E' S4,5,8,17,18,20	HCC HSH	100 150	3.0			Garnet
Keenan	T18N R15E, S20-23,25-29, 35,36 T17N R15E; S1	HCR HSH	100 100	3.0			Little Buck
Keg	T22N R14E, S4,8,10,20 T23N R14E, S34 T22N R13E; S14	HCC HSH	100 50	4.0			Barrel Area
Tumble Dry	T22N R13E; S10,16,22	HCC	200	5.0			Tumble Cr.
Cedar Ridge	T19N R15E, S13-16,20-24	HCC HTH	100 100	3.0			S Cle Elum Ridge
High Log	T19N R12E; S2,12 T20N R12E, S36 T19N R13E, S6	HCC	60	2.0			Log Horn
Hovey Divide	T21N R17E; S7-10,15-18 21,22	HCC HSH	100 100	2.0			Blue Divide
Reindeer	T20N R17E; S10-15 T20N R18E; S18	HCC HSH	80 50	1.5			Deer Gulch
French Fry	T22N R13E, S34,36 T22N R14E, S30 T21N R13E; S2,12	HCC	85	2.0			Lucky Pierre
Salvage				3.0			
Misc				1.5			
SUBTOTAL			1,705	35.0			

A-63

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const	Reconst.	
<u>FY 1999 - Lake Wenatchee Ranger District (Continued)</u>							
Raging Creek	T28N, R16E, S 13-14, 23-24. T28N, R17E, S 18.	HCC	161	8.0	4.1	0.0	Predominantly DF.
		HFR	57				
Upper Duck	T26N, R15E, S 18-20	HCC	57	7.0	4.3	0.0	Most of sale is in current roadless area.
		HFR	111				
Barnard Creek	T27N, R16E, S 12 & 13. T27N, R17E, S 17-18	HCC	89	7.0	4.5	4.0	Portion of sale is visible from Lake Wenatchee.
		HSH	150				
		HFR	50				
Lower Beaver	T26N, R18E, S 7-8.	HCC	120	4.0	1.0	2.0	Predominant species DF, PP and Grand fir.
		HSH	40				
District Sales (District Wide)		HCC	100	4.0	0.0	0.0	Salvage and commercial thinning sales
		HSV	100				
		HTH	200				
SUBTOTAL			1,178	30.0	13.9	6.0	
<u>Leavenworth Ranger District</u>							
E Mission	T22N, R19E, S 27, 34.	HCC	100	6.0	0.0	0.0	
		HSH	100				
Magnet Creek	T22N, R18E, S 27, 34	HFR	300	3.0			Some helicopter
SUBTOTAL			500	9.0	0.0	0.0	
<u>Naches Ranger District</u>							
Tieton Canyon	T13N, R14E, S 1-2; T14N, R14E, S 23-26, 35 & 36, T14N, R15E, S 19-22, 28-32	HSH/HCR	100	3.0	1.0	1.0	
		HPR	250				
Little Egypt	T16N, R14E, S 10-16, 22-25; T16N, R15E, S 18-19, 30	HSH/HCR	230	4.0	0.0	2.0	
		HFR	130				

A-64

TEN YEAR TIMBER SALE ACTION SCHEDULE

Sale Name	Township, Range, & Section	Harvest		Sale Volume (MMBF)	Road (miles)		Principal Management Area and Remarks
		Method	Acres		Const.	Reconst.	
FY 1999 - Naches Ranger District (Continued)							
Puppy	T13N, R11E, S 1;	HSH/HCR	75	2 0	0.0	1.0	
	T13N, R12E, S 1-5, 11-12;	HPR	100				
	T14N, R12E, S 32-35						
Skim Milk	T17N, R14E, S 1-4, 10-12;	HCC	50	7.0	1.0	2.0	
	T18N, R14E, S 34-36;	HSH/HCR	400				
	T17N, R15E, S 4, 6 & 8	HFR	30				
Camper	T12N, R12E, S 1-3 & 9-12;	HCC	50	5.0	1.5	1.5	
	T12N, R13E, S 6,	HSH/HCR	150				
	T13N, R12E, S 36;	HFR	100				
	T13N, R13E, S 20, 29-32	HPR	50				
Strobach Mtn.	T13N, R13E, S 13 & 24,	HCC	75	5 0	0.5	3.0	
	T13N, R14E, S 5-9, 16-21 & 28-30	HSH/HCR	150				
		HFR	25				
		HPR	75				
Broken Glass	T16N, R13E, S 13-15, 22-24;	HCC	70	4.0	1.0	1.0	
	T16N, R14E, S 16-21	HSH/HCR	100				
		HFR	130				
Timberwolf Mtn.	T14N, R13E, S 1 & 12;	HCC	75	5.0	1.5	0.0	
	T15N, R13E, S 25 & 36;	HSH/HCR	150				
	T14N, R14E, S 5-7,	HFR	100				
	T15N, R14E, S 19-21, 28-33						
Narrowneck Gap	T12N, R12E, S 13, 24 & 26,	HCC	70	4 0	1 5	0 0	
	T12N, R13E, S 18-20	HSH/HCR	210				
		HFR	200				
Salvage	District-wide	HPR	100	0.5	0.0	0.0	Small salvage sales
Misc.	District-wide	HCC	100	9.0	0.0	0.0	9-18 small sales.
		HSH/HCR	150				
		HFR	300				
		HPR	200				
SUBTOTAL			3,995	48.5	8.0	11.5	
1999 TOTAL			9,328	134.5	(27 9)	(19 5)	

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**VEGETATION MANAGEMENT PRACTICES  
(ANNUAL AVERAGE IN FIRST DECADE FOR SUITABLE LANDS)**

Practice	Acres
Regeneration harvest:	
Clearcut	2,719
Shelterwood and seed tree	
- Preparatory cut	100
- Seed Cut	2,697
- Removal cut	2,320
Selection	112
Intermediate harvest:	
Commercial thinning	252
Salvage/sanitation	210
Timber stand improvement	<u>4,200</u>
Reforestation	<u>4,300</u>

Based on the 10 year action schedule the Ranger Districts estimate 2,719 acres of clearcut harvest. This is about 32 percent of the acres planned for harvest. Clearcutting reduces damage to future stands from dwarf mistletoe. Manipulation of species composition by planting can also reduce future losses to root disease and can be accomplished best using either shelterwoods or clearcut methods.

Shelterwood cutting can be done in two or three steps. As shown in Table IV-8, most of the Forest's planned shelterwoods in the next 10 years involve only seed cut and final removal. Preparatory cuts are seldom used due to the extra cost of a third entry into the stands. An additional entry also increases risks of soil compaction and wildlife disturbance.

Commercial thinning is also little used in the pure sense on the Forest. Few acres were selected by FORPLAN for commercial thinning. Based on maximizing present net value, approximately 3 percent or 252 acres of the general forest area are planned for commercial thinning. Additional commercial thinning could increase yields and revenues, but the costs exceed the benefits at the present time on most acres. Most of the current commercial thinning planned is for metallurgic chips from overstocked stands. Both direct costs and revenues are low for these sales as currently being prepared and administrated.

Salvage and sanitation acres are rough estimates and may be less than will actually be completed. These types of sales are in high demand by small operators as they usually required less capital and equipment than normal sales. Most people do not like to see forest residues from dead or windthrown trees accumulate and, therefore, salvage of this material has a higher acceptance by the public than harvest of "green" trees. However, greater

recognition of the need for wildlife trees and forest residue will keep salvage at a lower level than in the past.

"Selection" cutting or unevenaged management acres are probably the most difficult to predict. These will be identified on a site specific basis by the silviculturist on the Districts. Depending on definition, many of the acres managed for other resource emphasis will approach unevenaged management due to the long rotations and constant tree cover strived for. However, the primary difference between the proposed management and unevenaged management is that a definite heavy harvest to stimulate regeneration is planned on most of these acres. In pure unevenaged management a little regeneration is expected each year with no set "regeneration" cut proposed.

#### EARNED HARVEST

As shown in the monitoring plan, an increase or decrease of suitable acres or in intensive management of +10 percent will result in a recalculation of the annual sale quantity. Below is the calculation of the earned harvest factors

#### Calculation of the Earned Harvest Factors (EHF)

Planned Level: Includes prompt restocking with genetically selected planting stock on 75 percent of the clearcut and shelterwood acres. Precommercial thinning is proposed on 3,700 acres annually during the first decade. An estimated 500 acres of release is planned and often is done currently with thinning. These two items will be considered as an aggregate and termed timber stand improvement (T.S.I.). No fertilization is proposed at the planned level.

Earned Harvest Adjustment Level: If timber stand improvement (release and precommercial thinnings) vary by more than +10 percent from the goal of 4,200 acres, and adjustment in the annual sale quantity will be made. This adjustment will be based on the change in potential yield for management with precommercial thinning (GF-1) and management without precommercial thinning (GF-4) based on the managed yield tables. This is approximately 553 cubic feet of increased wood for each acre precommercially thinned. This is based on approximately equal "dry" and "wet" thinning.

Therefore, an increase or decrease of +10 percent in timber stand improvement acres would translate to a 165.9 M cubic feet change in annual sale quantity, (300 acres x 553 = 165.9 M cubic feet or .9 MM board feet).

Precommercial Thinning Earned Harvest Factor = 553 cubic feet/AC treated.

Fertilization Earned Harvest Factor = 471\* cubic feet/AC treated. As the base level is 0 treatment, any fertilization completed can be used to increase in the annual sale quantity. An increase in the sale quantity should be made when the increase from fertilization equals + 10 percent of the annual allowable quantity or 238 M cubic feet. This would occur with a threshold fertilization amount of approximately 2,000 acres per year.

\* Based on research findings from operational fertilization on the Cle Elum Ranger District. Approximately equal to results Region-wide reported by Miller 1979.

RANGE ALLOTMENT ANALYSIS AND REANALYSIS

Project Name	Type	District	Unit of Measure	Units By Year												
				90	91	92	93	94	95	96	97	98	99	01		
Horse Thief	Reanalysis	Chelan	Plans	1												
Table Mountain	Reanalysis	Cle Elum	Plans	1												
Potato Creek	Reanalysis	Entiat	Plans	1												
Leavenworth Sheep	Reanalysis	Leavenworth	Plans	1												
Soop Creek	Reanalysis	Naches	Plans		1											
Lake Sheep Combined	Reanalysis	Lake Wenatchee	Plans		1											
McFarland	Reanalysis	Chelan	Plans		1											
Manastash	Reanalysis	Cle Elum	Plans		1											
Mosquito Ridge	Reanalysis	Entiat	Plans			1										
Tieton	Reanalysis	Naches	Plans			1										
Antoine Creek	Reanalysis	Chelan	Plans			1										
Stafford	Reanalysis	Cle Elum	Plans			1										
#2 Canyon	Reanalysis	Leavenworth	Plans				1									
Wildhorse	Reanalysis	Lake Wenatchee	Plans				1									
Conrad Meadows	Reanalysis	Naches	Plans				1									
Alta Coulee	Reanalysis	Chelan	Plans				1									
Swauk	Reanalysis	Cle Elum	Plans				1									
Upper Hay Canyon	Reanalysis	Leavenworth	Plans					1								
Rattlesnake	Reanalysis	Naches	Plans					1								
Buttermilk	Reanalysis	Chelan	Plans					1								
Horsethief	Reanalysis	Chelan	Plans					1								
Cooper French	Reanalysis	Cle Elum	Plans						1							
Horse Lake	Reanalysis	Leavenworth	Plans						1							
Naches	Reanalysis	Naches	Plans						1							
Round Mountain	Reanalysis	Chelan	Plans						1							
Corral Fortune	Reanalysis	Cle Elum	Plans							1						
Entiat	Analysis	Entiat	Plans							1						
Lower Hay Canyon	Reanalysis	Leavenworth	Plans							1						
Nile	Reanalysis	Naches	Plans							1						
Slide Ridge	Reanalysis	Chelan	Plans								1					
Railroad Creek	Reanalysis	Chelan	Plans								1					
Virden	Reanalysis	Cle Elum	Plans								1					
Range 42	Reanalysis	Naches	Plans								1					
Washington Creek	Reanalysis	Chelan	Plans									1				
Lutz SV	Reanalysis	Chelan	Plans									1				
Icicle Ridge Rec	Reanalysis	Leavenworth	Plans									1				
White Pine Rec	Reanalysis	Lake Wenatchee	Plans									1				
25 Mile Admin	Reanalysis	Chelan	Plans										1			
Cle Elum River Rec	Reanalysis	Cle Elum	Plans											1		
Mad River Rec	Reanalysis	Entiat	Plans											1		
Chiwaukum Rec	Reanalysis	Leavenworth	Plans											1		
White River Rec	Reanalysis	Lake Wenatchee	Plans												1	
Crow Creek Rec	Reanalysis	Naches	Plans												1	
Sun Mountain Rec	Reanalysis	Chelan	Plans												1	
Taneum Rec	Reanalysis	Cle Elum	Plans												1	
Operational Costs	---	All	M\$	108	108	108	108	108	108	108	108	108	108	108	108	108

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RANGE IMPROVEMENTS

Project Name	Type	District	Unit of Measure	Units By Year											
				90	91	92	93	94	95	96	97	98	99	01	
Forest-wide Reconstruction	Fence	All	Miles	4											
Lt. Murray Boundary (KV)	Fence	Cle Elum	Miles	5											
McFarland	Fence	Chelan	Miles	1											
Frost/Buck Meadows	Fence	Cle Elum	Miles	3											
Section 25	Fence	Entiat	Miles	1 5											
Forest-wide Replacement	Springs	All	Each	5											
Bird Springs	Spring	Cle Elum	Each	1											
Union Valley	Spring	Chelan	Each	1											
Osborn Stock Water	Spring	Entiat	Each	1											
Beaver Creek T.S.	Spring	Lake Wenatchee	Each	3											
Eagle-Blagg	Spring	Leavenworth	Each	1											
Frost/Buck Meadows	Cattleguard	Cle Elum	Each	2											
Section 25	Cattleguard	Entiat	Each	1											
Minnie Meadows	Cattleguard	Naches	Each	1											
Union Valley	Corral	Chelan	Each	1											
Forest-wide Weed Maint.	Weed Control	All	Acres	200											
Antoine Veg Improv.	Veg. Imp	Chelan	Acres	150											
Swauk Highway	Weed Control	Cle Elum	Acres	25											
Forest-wide Reconstruction	Fence	All	Miles		3										
Union Valley	Fence	Chelan	Miles		1										
Naneum Meadows Reconstruct	Fence	Cle Elum	Miles		1										
Haney Meadows Reconstruction	Fence	Cle Elum	Miles		1										
Johnson/First Creek (KV)	Fence	Cle Elum	Miles		0.5										
Number 2 Canyon	Fence	Leavenworth	Miles		2 0										
Wildcat Drift	Fence	Naches	Miles		2.0										
Columbia Breaks	Fence	Entiat	Miles		1										
Forest-wide Replacement	Springs	All	Each		4										
McFarland	Spring	Chelan	Each		1										
Antoine	Spring	Chelan	Each		1										
Slide Ridge	Spring	Chelan	Each		1										
Corral Creek Reconstruction	Spring	Cle Elum	Each		1										
Coyote Springs	Springs	Entiat	Each		2										
Coyote Springs	Pipeline	Entiat	Miles		1.5										
Upper Hay Canyon	Spring	Leavenworth	Each		1										
Sec. 24	Spring	Naches	Each		1										
Union Valley	Cattleguard	Chelan	Each		1										
South Fork Road (KV)	Cattleguard	Cle Elum	Each		1										
North Fork Road	Cattleguard	Cle Elum	Each		1										
Trinity (Upper Chiwawa)	Corral	Lake Wenatchee	Each		1										
Valley Seeding (KV)	Seeding	Cle Elum	Acres		150										
Beaver Creek Seeding (KV)	Seeding	Lake Wenatchee	Acres		187										
Soup Creek Control	Weed Control	Naches	Acres		5										
Tieton Control	Weed Control	Naches	Acres		10										

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RANGE IMPROVEMENTS

Project Name	Type	District	Unit of Measure	Units By Year												
				90	91	92	93	94	95	96	97	98	99	01		
Forest-wide Weed Maint.	Weed Control	All	Acres		100											
Forest-wide Reconstruction	Fence	All	Miles			3.5										
Slide Ridge	Fence	Chelan	Miles			1										
Reecer Rail Reconstruction	Fence	Cle Elum	Miles			1										
Taneum West Bdry Reconst.	Fence	Cle Elum	Miles			2										
Buck Meadows West Boundary	Fence	Cle Elum	Miles			1										
Tyee/Windy	Fence	Entiat	Miles			0.2										
Roudy/Windy	Fence	Entiat	Miles			1.75										
Forest-wide Replacement	Spring	All	Each			6										
Union Valley	Spring	Chelan	Each			1										
Antoine	Spring	Chelan	Each			1										
Swauk Pass	Spring	Cle Elum	Each			1										
Long Springs (3 Tanks)	Spring	Entiat	Each			1										
Long Springs	Pipeline	Entiat	Miles			0.75										
Willow Springs (4 Tanks)	Spring	Entiat	Each			1										
Willow Springs	Pipeline	Entiat	Each			0.75										
Number 2 Canyon	Spring	Leavenworth	Each			1										
Slide Ridge	Cattleguard	Chelan	Each			1										
South Cle Elum Ridge	Cattleguard	Cle Elum	Each			1										
Skull Springs Road	Cattleguard	Cle Elum	Each			1										
Tyee/Windy	Cattleguard	Cle Elum	Each			2										
Cle Elum Valley Sheep	Corral	Cle Elum	Each			1										
Forest-wide Weed Maint	Weed Control	All	Acres			100										
Union Valley	Veg Imp	Chelan	Acres			200										
Cool Bunker (KV)	Seeding	Cle Elum	Acres			100										
Sandstone (KV)	Seeding	Cle Elum	Acres			50										
Labyrinth (KV)	Seeding	Lake Wenatchee	Acres			96										
Little Wenatchee (KV)	Seeding	Lake Wenatchee	Acres			109										
Soup Creek Revegetation	Seeding	Naches	Acres			140										
Rattlesnake	Weed Control	Naches	Acres			40										
Peavine	Driveway	Lake Wenatchee	Miles			0.1										
Forest-wide Reconstruction	Fence	All	Miles				5.75									
Antoine	Fence	Chelan	Miles				1									
Table Mountain Rim Reconst.	Fence	Cle Elum	Miles				0.1									
Lion/Wilson Bdy	Fence	Cle Elum	Miles				0.5									
Bowers/Wilson Bdy. (KV)	Fence	Cle Elum	Miles				0.5									
Tyee Division	Fence	Entiat	Miles				1.75									
Bernett Ridge Drift	Fence	Entiat	Miles				0.25									
Moe Canyon	Fence	Entiat	Miles				0.25									
Forest Wide Replacement	Springs	All	Each				5									
Union Valley	Spring	Chelan	Each				1									
McFarland	Springs	Chelan	Each				2									

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RANGE IMPROVEMENTS

Project Name	Type	District	Unit of Measure	Units By Year											
				90	91	92	93	94	95	96	97	98	99	01	
Slide Ridge	Spring	Chelan	Each				1								
Windy Unit (2 Tanks)	Spring	Entiat	Each				1								
Windy Unit	Pipeline	Entiat	Miles				1.5								
Upper Tye	Pipeline	Entiat	Miles				1.5								
Tye Extension	Spring	Entiat	Each				1								
Tye Extension	Pipeline	Entiat	Miles				0.25								
Bow Camp	Spring	Entiat	Each				1								
Bow Camp	Pipeline	Entiat	Miles				0.25								
Antoine	Cattleguard	Chelan	Each				1								
Grat Flat West Road	Cattleguard	Cle Elum	Each				1								
Quartz Mountain Road	Cattleguard	Cle Elum	Each				1								
Bernett Ridge	Cattleguard	Entiat	Each				1								
Moe Canyon	Cattleguard	Entiat	Each				1								
Cle Elum Valley C-V	Corral	Cle Elum	Each				1								
Forest-wide Weed Maint.	Weed Control	All	Acres												
McFarland Veg Imp.	Veg. Imp	Chelan	Acres				200								
Blue Hurley Seeding (KV)	Seeding	Cle Elum	Acres				150								
Willie Seeding (KV)	Seeding	Cle Elum	Acres				100								
Meadowside T.S. (KV)	Seeding	Lake Wenatchee	Acres				95								
Peavine T S. (KV)	Seeding	Lake Wenatchee	Acres				45								
Jumpoff Revegetation	Veg. Imp	Naches	Acres				200								
Swamp Creek	Driveway	Naches	Miles				3								
Forest-wide Reconstruction	Fence	All	Miles					2							
Union Valley	Fence	Chelan	Miles					1							
McFarland	Fence	Chelan	Miles					1							
Johnson Bdy Reconst.	Fence	Cle Elum	Miles					2							
Virden Bdy Reconst. (KV)	Fence	Cle Elum	Miles					0.5							
Roaring Ridge	Fence	Entiat	Miles					1.25							
Wilkinson	Fence	Entiat	Miles					2.25							
Forest-wide Replacement	Springs	All	Each					6							
Roth Rock with pipe	Spring	Entiat	Each					1							
Roaring with pipe (3 Tanks)	Spring	Entiat	Each					1							
Roaring Unit	Springs	Entiat	Each					4							
Union Valley	Cattleguard	Chelan	Each					1							
Ragan Road	Cattleguard	Chelan	Each					1							
Liberty Beehive	Cattleguard	Chelan	Each					1							
Roaring Ridge	Cattleguard	Entiat	Each					1							
Forest-wide Weed Maint	Weed Control	All	Acres					100							
Lower Reecer	Seeding	Cle Elum	Acres					50							
Forest-wide Weed Control	Weed Control	All	Acres					275							
Little Wenatchee TS Driveway	Bridge	Lake Wenatchee	Each					1							
Forest-wide Reconstruction	Fence	All	Miles						5.25						
McKenzie Drift	Fence	Entiat	Miles						1.5						

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RANGE IMPROVEMENTS

Project Name	Type	District	Unit of Measure	Units By Year													
				90	91	92	93	94	95	96	97	98	99	01			
Potato Creek	Fence	Entiat	Miles							0.5							
Decker Canyon	Fence	Entiat	Miles							0.25							
Fuller Drift	Fence	Entiat	Miles							0.5							
Mud Murdock	Fence	Entiat	Miles							1.5							
Forest-wide Replacement	Springs	All	Each							5							
Randal Pond	Pond	Entiat	Each							1							
Potato Creek Unit	Tanks	Entiat	Each							7							
Potato Creek Unit	Pipeline	Entiat	Miles							3.5							
Potato Creek Unit	Cattleguard	Entiat	Each							1							
Johnson Creek	Cattleguard	Entiat	Each							1							
Fuller	Cattleguard	Entiat	Each							1							
Forest-wide Weed Maint.	Weed Cont.	All	Acres							225							
Antoine Veg Imp.	Veg. Imp	Chelan	Acres							150							
Forest-wide Reconstruction	Fence	All	Miles								5						
Bigspring Drift	Fence	Entiat	Miles								0.5						
Forest-wide Construction	Fence	All	Miles								4						
Forest-wide Replacement	Springs	All	Each								6						
Union Valley	Spring	Chelan	Each								1						
McFarland	Spring	Chelan	Each								1						
Wilkinson	Spring	Entiat	Each								1						
Baldy Ridge	Spring	Entiat	Each								1						
Baldy Mountain	Spring	Entiat	Each								1						
Middle Mud	Spring	Entiat	Each								1						
Harris Creek Road	Cattleguard	Entiat	Each								1						
Forest-wide Weed Maint	Weed Control	All	Acres								100	100	100	100	100	100	100
Forest-wide Weed Control	Weed Control	All	Acres								100	100	275				200
Union Valley Veg Imp	Veg. Imp	Chelan	Acres								200					200	
McFarland Veg Imp	Veg Imp.	Chelan	Acres								75		75			75	75
Slide Ridge Veg Imp	Veg Imp.	Chelan	Acres									100					
Forest-wide Reconstruction	Fences	All	Miles									6	6	6	6	6	
Union Valley	Fence	Chelan	Miles									1					
McFarland	Fence	Chelan	Miles									1					
Antoine	Fence	Chelan	Miles											1			
Slide Ridge	Fence	Chelan	Miles											1			
Forest-wide Construction	Fence	All	Miles									1.5	1.5	3.5	3.5	3.5	
Forest-wide Replacement	Springs	All	Each									7	7	7	7	7	
Union Valley	Spring	Chelan	Each											1			
McFarland	Spring	Chelan	Each											1			
Antoine	Spring	Chelan	Each											1		1	
Slide Ridge	Spring	Chelan	Each											1		1	
Forest-wide	Springs	All	Each											3	3	3	5
Union Valley	Cattleguard	Chelan	Each											1			
Forest-wide	Cattleguard	All	Each											1	1	1	

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WATERSHED IMPROVEMENT PROJECTS - TREATED ACRES

District	Unit of Measure	Units By Year									
		90	91	92	93	94	95	96	97	98	99
Entiat (NFSW)	Acres	100	100	75	10	10	10	10	10	10	10
Entiat (CWKV)	Acres	20	20	20	15	10	5	5	5	5	5
Chelan (NFSW)	Acres	80	100	90	5	5	5	10	5	5	5
Chelan (CWKV)	Acres	5	-	5	-	5	-	5	-	5	-
Leavenworth (NFSW)	Acres	5	120	20	20	20	15	5	5	5	5
Leavenworth (CWKV)	Acres	15	15	15	15	15	15	15	15	15	15
Lake Wenatchee (NFSW)	Acres	10	10	15	15	15	15	15	15	15	15
Lake Wenatchee (CWKV)	Acres	5	5	5	5	5	5	5	5	5	5
Naches (NFSW)	Acres	15	15	15	15	15	15	15	15	15	15
Naches (CWKV)	Acres	5	5	10	10	10	10	10	10	10	10
Cle Elum (NFSW)	Acres	15	15	15	15	15	15	15	15	15	15
Cle Elum (CWKV)	Acres	5	5	10	10	10	10	10	10	10	10
Watershed Imp. Mtce. (Forest-wide)	Acres	10	10	10	10	10	10	10	10	10	10

**MINERALS PROGRAM**

Project Name	Unit of Measure	Units By Year									
		90	91	92	93	94	95	96	97	98	99
<b><u>ENERGY MINERALS</u></b>											
(1) Processing Notices of Intent, Plans and Leases	Cases	35	35	40	40	45					
(2) Administering Activities	Cases	10	10	12	12	15					
(3) Inventory Leasable Mineral Resources <u>1/</u>	1000 Acres	20	20	20	20	20					
<b><u>NON-ENERGY MINERALS</u></b>											
<b><u>Locatable and Leasable</u></b>											
(1) Processing Notices of Intent, Plans, Leases, and Permits	Cases	77	79	80	80	85	90				
(2) Administering Activities	Cases	20	22	24	24	30	32				
(3) Site-specific Investigation	Sites	5	6	8	9	9	9				
(4) Contest and Hearings	Cases	2	3	3	3	3	3				
(5) Inventorying Locatable Mineral Resources <u>2/</u>	1000 Acres	22	23	22	22	22	23				
<b><u>COMMON VARIETY MINERALS</u></b>											
(1) Processing Sales and Permits	Cases	60	65	65	68	70	70	71	73		
(2) Administering Permits	Cases	15	17	17	18	20	20				
(3) Inventorying Common Variety Mineral	Acres	500									
(4) Site Evaluation for F S. Use	Sites	5	7	7	7	7	8	8	10	8	8
<b><u>GEOLOGIC RESOURCES</u></b>											
(1) Evaluate Sites and Develop Plans	Plans	7	8	7	8	6	5	8			
(2) Conducting Site Investigations for F S Road Construction	Sites 1000	8	11	9	10	10	11	9	9		
(3) Inventorying Geologic and Materials Resources	Acres	18	18								
(4) Geologic Technical Investigation	Sites	2	2								

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"LANDS" ACTIVITIES

Activity	Unit of Measure	Units By Year									
		90	91	92	93	94	95	96	97	98	99
Property Line Survey	Mile*	75	75	75	70	70	70	65	65	65	65
Property Line Maintenance	Mile	-----57-----									
Cost Sharing	Supplements	16	14	14	14	14	12	10	10	8	8
Right-of-Way Acquisition	Easements**	6	6	6	5	5	5	5	4	4	4
Right-of-Way Grants	Permits & Easements	6	6	6	6	5	5	5	4	4	4
FERC Projects	Permits & Licenses	28	28	22	22	22	20	20	15	10	10
Withdrawal Reviews	Cases	6	5	5	4	4	4	3	3	3	3
Trespass and Title Claims	Cases	6	6	6	6	5	5	5	4	4	4
Small Tract Act	Cases	4	4	4	4	4	3	3	3	2	2
Special Use Administration	Cases	740	755	765	775	785	790	795	800	805	815

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Land Exchange (See Appendix B)  
Purchase (See Appendix B)

\* Estimated 65 miles solely Forest Service work and the remainder shared with neighboring landowners.

\*\* Outside of cost sharing program.

ROAD AND BRIDGE CAPITAL INVESTMENT

Activity/Project	FIRST FIVE YEARS		SECOND FIVE YEARS	
	Cost (Thousands)	Outputs (Miles)	Cost (Thousands)	Outputs (Miles)
Rainy Cr./Laby Mt. 6700 000	315	5.6		
Cle Elum Culvert	130	9		
Cost Share #1	216	0.0		
Bridge R/R	120	0.6		
Bethel Ridge Rd 1500 000	164	3.6		
Waptus TH access 4316 111	50	.9		
Boulder Cave Acc. 1704 000	196	2.8		
Chiwawa river Rd 6200 000	260	2.1		
N Fk Teanaway 9737 000	575	9.9		
Cost Share #2	238	0.0		
Icicle/Eightmile 7600 000	750	6.0		
Nile Loop 1600 000	210	3.0		
Lake Cr. Basin 5904 200	67	3.5		
Cle Elum River CG 4300 123	41	5		
Wishpoosh CG 4300 112	53	2.7		
Glacier View Rd 6607 000	90	1.3		
Cost Share #3	70	0.0		
S. Fk Tieton Pave 1000 000	960	7.3		
Entiat Valley 5100 000	235	5.1		
Bumping Dam Rd 1800 394	60	0.8		
Bumping Lk Pave 1800 000	50	0.3		
Swauk 9700 112	54	2.0		
Cayuse Camp 4300 132	50	0.7		
Box/Gale Surf 4830 000	165	4.8		
Hurley Cr Surf 9711 000	95	4.8		
Lion Rock 3500 124	50	0.6		
Station Asphalt 4812 000	146	1.2		
Bridge Repl #1	350	1.0		
Bridge Repl #2			350	1.0
Yakima Fish Hab			75	0.5
Lodgepole Access			75	3.0
Tieton (Yakima cty) 12			400	1.0
Bridge Repl #3			350	1.0
Table Mountain 3500 000			50	4.2
Kittitas Fish Hab			75	0.5
Liberty Beehive 9712 000			100	2.1
Tyee Rdg Pave #2 5700 000			100	4.0
Chelan Fish Hab			75	0.5
Taneum Pave 33			270	6.8
Mission Creek 7100 000			315	12.7
Lodgepole Acc #2			75	3.0
Nile Loop Pave 1600 000			250	3.0
Shady Pass 5900 000			725	15.8
Grade Creek 8200 000			205	4.2
Derby 7400 000			100	0.7

BRIDGE REPLACEMENT/REHABILITATION FORECAST

BRIDGE NAME	BRIDGE NUMBER	TIME PERIOD	BRIDGE TYPE	BRIDGE LENGTH	BRIDGE WIDTH	YEAR BUILT	WORK REQUIRED	EST COST (\$1000'S)
Bear Paw Butte	4111-0 3	1990-1995	UT	40	14	1967	Replacement in kind	30
Snowshoe Butte	4113-1 4	1990-1995	UT	46	14	1968	Replacement in kind	35
Meadow Creek	5480-1.6	1990-1995	TT	70	14	1956	Replace with permanent structure	75
Lower Resort Creek	4832-3.7	1990-1995	UT	36	14	1966	Replace in kind	25
Tumble Creek Spur	4600127-0 8	1995-2000	UT	41	14	1965	Replace in kind	30
Boulder Creek	4330-4 2	1995-2000	TT	28	14	1957	Replace with permanent structure	30
Fortune	43302405-7 1	1995-2000	TT	60	14	1958	Replace in kind	60
Candle Wick	4308122-0.1	1990-1995	UT	34	14	1962	Replace	25
Lakeview	9070125-0 1	1990-1995	UT	51	14	1966	Replace in kind	35
Mineral Springs	9700120-0.1	1990-1995	TT	55	14	1955	Resurface deck	10
Stafford Creek	9737-1 3	1990-1995	TT	66	14	1958	Resurface deck	10
Beverly Creek	9737-3.8	1990-1995	TT	64	14	1956	Resurface deck	10
N.F. Taneum	3300-8 0	1990-1995	TT	32	14	1957	Replace deck	10
S F. Manastash	3100-11/4	1990-1995	UT	24	14	1959	Replace in kind	25
M Fk Teanaway Rv	4305113-11 0	1990-1995	TT	75	14	1955	Resurface deck	10
Pipe Creek	9700140-0 1	1990-1995	UT	21	13	1962	Replace in kind	20
Porky Basin	9700121-0 1	1990-1995	UT	20	14	1968	Replace in kind	20
Standup Creek	9703-0.7	1990-1995	TT	40	14	1956	Resurface deck	10
Bear Creek	9703-2 5	1990-1995	TT	39	14	1955	Resurface deck	10
Beverly Creek #1	9737112-0.7	1990-1995	UT	33	14	1968	Replace in kind	25
Beverly Creek #2	9737112-1 2	1995-2000	UT	32	14	1967	Bridge to be removed and closed at this point	5
Thorp Trail	4312121-0.1	1990-1995	UT	26	16 2	1980	Replace	35
Cooper River Rd	4616-2 8	1990-1995	UT	33 7	16	1964	Replace	35
N F Entiat	5100-23	1990-1995	C	41	11	1948	Repair deck spall	10
Moe Ridge	5801-0.1	1990-1995	UT	43	17	1977	Replace in kind	35
Rainy Creek #1	6701-0 7	1990-1995	TT	47	14 1	1956	Resurface	10
Smithbrook	6700-1.0	1990-1995	UT	53	14	1973	Replace with TT	50
Mill Creek 2	6960-3 8	1990-1995	UT	51	11	Unknown	Replace in kind	30
Mill Creek 3	6960-4 5	1990-1995	UT	35	14	Unknown	Replace	30
Mission Creek	7100-1 0	1990-1995	TT	32	14	1949	Replace in kind	30
Peshastin #1	7320-0.1	1995-2000	UT	73	14	1977	Replace	75
Eight Mile #1	7601-0 1		C	157	14	1966	Utilize at less than legal rating	N/A
Eight Mile #2	7601-3.7	1990-1995	UT	60	20	1970	Utilize at less than legal rating	30
Crow Creek	1902-0 3	1990-1995	TT	44 <sub>3</sub>	14 <sub>2</sub>	1954	Replace in kind	50
Lower Clear Creek	1200740-1 3	1985-1990	UT	151 <sub>3</sub>	18 <sub>2</sub>	1936	Replace portion	135
French Cabin #2	4308-5.2	1990-1995	UT	32	16	1962	Replace in kind	25
Mad River Trail	1409 1-1 2	1990-1995		52	6	1963	Replace	36
Tommy Creek Trail	1424-0 1	1990-1995		54	6	1971	Replace	37
Mad River Trail	1409-10.5	1995-1999		36	6	1966	Replace	25

C-CONCRETE, S-STEEL, TT-TREATED TIMBER, UT-UNTREATED TIMBER OR LOG

A-77

PRIORITIZED FA&O CAPITAL INVESTMENT PROJECT LIST  
( > \$100,000)

Project Description	Unit	Cost Est. (\$M)
1. Office Addition (9000 Sq.Ft.)	Cle Elum	\$ 890
2. Office Addition (4700 Sq.Ft.)	Lake Wen.	\$ 376
3. Office Addition (3000 Sq.Ft.)	Entiat	\$ 240
4. 6-plex Bunkhouse (5400 Sq Ft.)	Lake Wen	\$ 378
5. 30-person Bunkhouse (4500 Sq.Ft.)	Entiat	\$ 315
6. Warehouse (3000 Sq Ft.)	Entiat	\$ 180
7. Colocation, FSL/NTC	NTC	\$ 472
8. 24-person Bunkhouse	Cle Elum	\$ 200

PRIORITIZED FOREST CAPITAL INVESTMENT PROJECT LIST  
( < \$100,000)

Project Description	Unit	Cost Est. (\$M)
1. Office Addition (930 Sq Ft )	Chelan	\$ 75
2. Office Addition (1200 Sq Ft )	Lake Wen	\$ 96
3. Office Renovation	Leavenworth	\$ 100
4. Annex Addition (1500 Sq Ft.)	Chelan	\$ 100
5. Fire Office Renovation	Leavenworth	\$ 55
6. Parking Area Construction	Chelan	\$ 10
7. Parking Area Construction	Lake Wen.	\$ 100
8. 10-person Bunkhouse (1400 Sq.Ft.)	Chelan	\$ 100

## APPENDIX B

### LANDOWNERSHIP SITUATION

The land ownership guidance for the Forest is contained in the Forest management prescriptions for this Forest Plan. (See 24.81--J11 Landownership Planning in each prescription.) This language in the prescriptions directs every acre of the forest into one of the five (5) landownership classification categories defined on pages 100 and 101 of Chapter IV of this plan.

The location of the lands within each of these categories is shown on the Landownership Classification Map in this appendix.

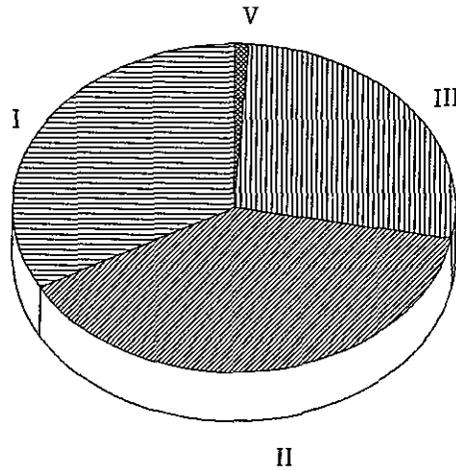
Total acreages by prescription and category are displayed on the pie chart in this appendix.

In addition, further guidance relating to the acquisition of recreation lands is contained in the Chelan, Lake Wenatchee, and Icicle Creek Composite plans. Copies of these documents are located at the Chelan, Lake Wenatchee, and Leavenworth Ranger Stations.

A projection of acres to be exchanged and purchased over the first decade of the plan follows. In the land exchange projection, the acres shown are the non-federal acres being acquired by the United States. A similar acreage of National Forest land should be considered as going into private ownership.

ACTIVITY	UNIT OF MEASURE	OUTPUT UNITS BY YEAR									
		1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
LAND EXCHANGE	M-Acres	9.0	10.0	3.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0
PURCHASE*	M-Acres	0.6	0.6	0.4	0.4	0.3	0.3	0.2	0.1	0.1	0.1

\* Purchase includes acquisition in fee (total) and acquisition of partial interests, such as scenic easements

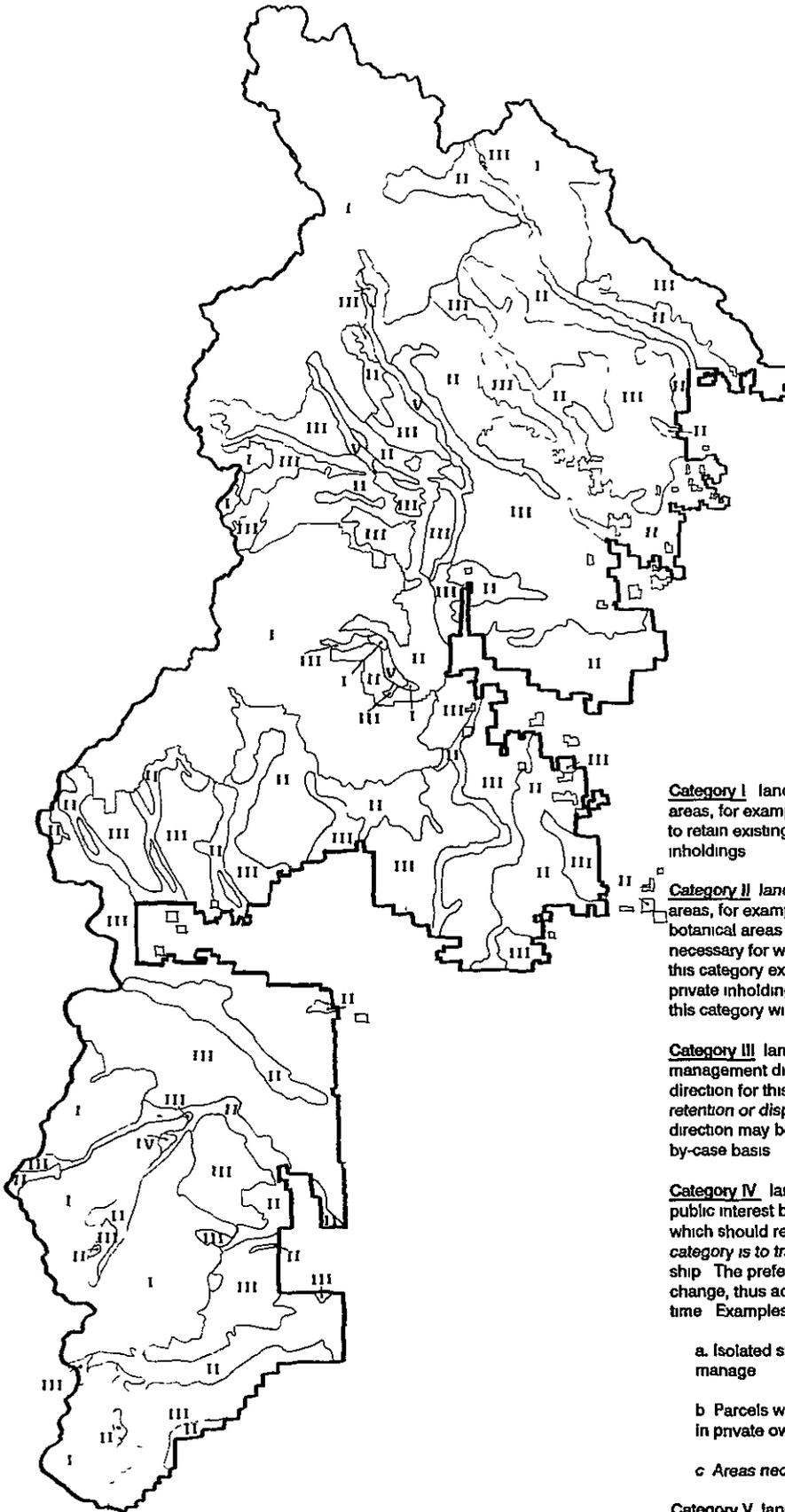


**LAND OWNERSHIP CLASSIFICATION OWNERSHIP DIRECTION**  
**by MANAGEMENT PRESCRIPTION**

Category	Management	National Forest Acres	Other ownership Acres
Category I	WI-1 and WS-3	841,034	2,204
Category II	EF-1	4,770	--
	EW-1	118,742	24,670
	EW-2	47,361	--
	EW-3	19,059	--
	OG-1	79,840	--
	OG-2	49,015	--
	RE-1	6,021	--
	RE-2	96,355	20,780
	RE-3	116,092	15,670
	RN-1	2,247	40
	SI-1	70,512	16,790
	SI-2	2,798	-
	ST-1	83,635	40,900
	MP	13,717	--
CATEGORY III	GF	389,089	125,130
	RE-4	6,614	--
	RM-1	17,702	1,480
	ST-2	174,880	40,860
	UC-1	* -	950
CATEGORY IV	N.A	--	--
CATEGORY V	WS-1, 2	16,917	
	RE-1	1,378	2960
	Mission Ridge Ski Area Only		

\*acres distributed among other management areas  
note: Other ownership has been estimated for this table

# LAND CLASSIFICATION



**Category I** lands are those within congressionally designated areas, for example a Wilderness. The direction for this category is to retain existing National Forest lands and acquire private inholdings.

**Category II** lands are those within administratively designated areas, for example, scenic areas, Mather Memorial Parkway, botanical areas and other lands which have been determined to be necessary for wildlife, visuals or recreation needs. Generally, in this category existing National Forest lands will be retained and private inholdings will be acquired. Acquisition of private lands in this category will be pursued as opportunities arise.

**Category III** lands are primarily within the land allocations where management direction emphasizes commodity production. The direction for this category is to avoid placing priorities on either retention or disposal of lands. Ownership changes in either direction may be appropriate. They will be considered on a case-by-case basis.

**Category IV** lands are National Forest lands which will serve the public interest best in private ownership and existing private lands which should remain in private ownership. The direction for this category is to transfer the National Forest lands into private ownership. The preferred method for accomplishing this is land exchange, thus advancing other land management goals at the same time. Examples of lands which fit this classification are:

- a. Isolated small parcels of land which are impractical to manage
- b. Parcels where a greater general public value can be derived in private ownership
- c. Areas necessary for community expansion

**Category V** lands are those which require an intensive study before priorities for ownership can be recommended. The direction for this category is to initiate the necessary studies at the earliest opportunity.

# **APPENDIX C**

## **INTRODUCTION**

The Wenatchee National Forest is within the area ceded to the U.S. Government by the Treaty with the Yakima, 1855. This treaty reserved to the confederated tribes and bands of the Yakima Indian Nation certain rights and privileges to these ceded lands. Among the most important rights with respect to management of the Forest are those identified in Article 3: "...the right of taking fish at all usual and accustomed places in common with the citizens of the territory, and of erecting temporary buildings for curing them; together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land..." This right includes consideration by the Forest Service of the environmental effects of their land management activities on the water quality and anadromous fish habitat of the Forest.

Certain additional uses of the Forest lands by the American Indians are authorized by P.L. 95-341, the Joint Resolution on American Indian Religious Freedom (AIRFA). This Act states that it shall be the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express and exercise their traditional religions. This includes, but is not limited to, access to sites, use and possession of sacred objects and the freedom to worship through ceremonials and traditional rites. This Act directs Federal Departments and Agencies to evaluate their policies and procedures in consultation with Native traditional religious leaders in order to determine appropriate changes necessary to protect and preserve Native American religious rights and practices.

The following are complete copies of the Treaty with the Yakima, 1855 and the American Indian Religious Freedom Act.

TREATY WITH THE YAKIMA, 1855

June 9, 1855

12 Stat. 961  
Ratified Mar 8 1859  
Proclaimed Apr 18,  
1859

*Articles of agreement and convention made and concluded at the treaty-ground, Camp Stevens, Walla-Walla Valley, this ninth day of June, in the year one thousand eight hundred and fifty-five, by and between Isaac L. Stevens, governor and superintendent of Indian affairs for the Territory of Washington, on the part of the United States and the undersigned head chiefs, chiefs, head-men, and delegates of the Yakama, Palouse, Pisuouse, Wenatshapam, Klkakat, Klnguit, Kow-was-say-ee, Li-ay-was, Skin-pah, Wish-ham, Shyiks, Oche-chotes, Kah milt-pah, and Se-ap-cat, confederated tribes and bands of Indians, occupying lands hereinafter bounded and described and lying in Washington Territory, who for the purposes of this treaty are to be considered as one nation, under the name of "Yakama," with Kamariakun as its head chief, on behalf of and acting for said tribes and bands, and being duly authorized thereto by them.*

Cession of lands to  
the United States

ARTICLE 1. The aforesaid confederated tribes and bands of Indians hereby cede, relinquish, and convey to the United States all their right, title, and interest in and to the lands and country occupied and claimed by them, and bounded and described as follows, to wit.

Boundaries

Commencing at Mount Ranier, thence northerly along the main ridge of the Cascade Mountains to the point where the northern tributaries of Lake Che-lan and the southern tributaries of the Methow River have their rise; thence southeasterly on the divide between the waters of Lake Che-lan and the Methow River to the Columbia River; thence, crossing the Columbia on a true east course, to a point whose longitude is one hundred and nineteen degrees and ten minutes, (119° 10'), which two latter lines separate the above confederated tribes and bands from the Oskinakane tribe of Indians; thence in a true south course to the forty-seventh (47°) parallel of latitude; thence east on said parallel to the main Palouse River, which two latter lines of boundary separate the above confederated tribes and bands from the Spokanes; thence down the Palouse River to its junction with the Moh-hah-ne-she, or southern tributary of the same; thence in a southeasterly direction, to the Snake River, at the mouth of the Tucannon River, separating the above confederated tribes from the Nez Percé tribe of Indians, thence down the Snake River to its junction with the Columbia River: thence up the Columbia River to the "White Banks" below the Priest's Rapids, thence westerly to a lake called "La Lac," thence southerly to a point on the Yakama River called Toh-mah-luke; thence, in a southwesterly direction, to the Columbia River, at the western extremity of the "Big Island," between the mouths of the Umatilla River and Butler Creek; all which latter boundaries separate the

TREATY WITH THE YAKIMA, 1855.

above confederated tribes and bands from the Walla-Walla, Cayuse, and Umatilla tribes and bands of Indians; thence down the Columbia River to midway between the mouths of White Salmon and Wind Rivers, thence along the divide between said rivers to the main ridge of the Cascade Mountains; and thence along said ridge to the place of beginning

ARTICLE 2 There is, however, reserved, from the lands above ceded for the use and occupation of the aforesaid confederated tribes and bands of Indians, the tract of land included within the following boundaries, to wit Commencing on the Yakama River, at the mouth of the Attah-nam River, thence westerly along said Attah-nam River to the forks; thence along the southern tributary to the Cascade Mountains; thence southerly along the main ridge of said mountains, passing south and east of Mount Adams, to the spur whence flows the waters of the Klickitat and Pisco Rivers, thence down said spur to the divide between the waters of said rivers; thence along said divide to the divide separating the waters of the Satass River from those flowing into the Columbia River; thence along said divide to the main Yakama, eight miles below the mouth of the Satass River; and thence up the Yakama River to the place of beginning.

Reservation.

Boundaries

All which tract shall be set apart and, so far as necessary, surveyed and marked out, for the exclusive use and benefit of said confederated tribes and bands of Indians, as an Indian reservation; nor shall any white man, excepting those in the employment of the Indian Department, be permitted to reside upon the said reservation without permission of the tribe and the superintendent and agent. And the said confederated tribes and bands agree to remove to, and settle upon, the same, within one year after the ratification of this treaty. In the mean time it shall be lawful for them to reside upon any ground not in the actual claim and occupation of citizens of the United States, and upon any ground claimed or occupied, if with the permission of the owner or claimant

Reservations to be set apart etc., and Indians to settle thereon Whites not to reside thereon

Guaranteeing, however, the right to all citizens of the United States to enter upon and occupy as settlers any lands not actually occupied and cultivated by said Indians at this time, and not included in the reservation above named.

And provided, That any substantial improvements heretofore made by any Indian, such as fields enclosed and cultivated, and houses erected upon the lands hereby ceded, and which he may be compelled to abandon in consequence of this treaty, shall be valued, under the direction of the President of the United States, and payment made therefor in money; or improvements of an equal value made for said Indian upon the reservation. And no Indian will be required to abandon the improvements aforesaid, now occupied by him, until their value in money, or improvements of an equal value shall be furnished him as aforesaid.

Improvements on ceded lands

ARTICLE 3. And provided, That, if necessary for the public convenience, roads may be run through the said reservation; and on the other hand, the right of way, with free access from the same to the nearest public highway, is secured to them; as also the right, in common with citizens of the United States, to travel upon all public highways

Roads may be made

The exclusive right of taking fish in all the streams, where running through or bordering said reservation, is further secured to said confederated tribes and bands of Indians, as also the right of taking fish at all usual and accustomed places, in common with the citizens of the Territory, and of erecting temporary buildings for curing them, together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land.

Privileges secured to Indians

TREATY WITH THE YAKIMA, 1855

Payments by the  
United States

ARTICLE 4. In consideration of the above cession, the United States agree to pay to the said confederated tribes and bands of Indians, in addition to the goods and provisions distributed to them at the time of signing this treaty, the sum of two hundred thousand dollars, in the following manner, that is to say: Sixty thousand dollars, to be expended under the direction of the President of the United States, the first year after the ratification of this treaty, in providing for their removal to the reservation, breaking up and fencing farms, building houses for them, supplying them with provisions and a suitable outfit, and for such other objects as he may deem necessary, and the remainder in annuities, as follows: For the first five years after the ratification of the treaty, ten thousand dollars each year, commencing September first, 1856; for the next five years, eight thousand dollars each year; for the next five years, six thousand dollars per year; and for the next five years, four thousand dollars per year

How to be applied

All which sums of money shall be applied to the use and benefit of said Indians, under the direction of the President of the United States, who may from time to time determine, at his discretion, upon what beneficial objects to expend the same for them. And the superintendent of Indian affairs, or other proper officer, shall each year inform the President of the wishes of the Indians in relation thereto.

United States to es-  
tablish schools

ARTICLE 5. The United States further agree to establish at suitable points within said reservation, within one year after the ratification hereof, two schools, erecting the necessary buildings, keeping them in repair, and providing them with furniture, books, and stationery, one of which shall be an agricultural and industrial school, to be located at the agency, and to be free to the children of the said confederated tribes and bands of Indians, and to employ one superintendent of teaching and two teachers: to build two blacksmiths' shops, to one of which shall be attached a tin-shop, and to the other a gunsmith's shop, one carpenter's shop, one wagon and plough maker's shop, and to keep the same in repair and furnished with the necessary tools, to employ one superintendent of farming and two farmers, two blacksmiths, one tinner, one gunsmith, one carpenter, one wagon and plough maker, for the instruction of the Indians in trades and to assist them in the same, to erect one saw-mill and one flouring-mill, keeping the same in repair and furnished with the necessary tools and fixtures, to erect a hospital, keeping the same in repair and provided with the necessary medicines and furniture, and to employ a physician, and to erect, keep in repair, and provided with the necessary furniture, the building required for the accommodation of the said employees. The said buildings and establishments to be maintained and kept in repair as aforesaid, and the employees to be kept in service for the period of twenty years

Mechanics' shops

Sawmill and flour-  
ing mill  
Hospital

Salary to head chief  
house, etc

And in view of the fact that the head chief of the said confederated tribes and bands of Indians is expected, and will be called upon to perform many services of a public character, occupying much of his time, the United States further agree to pay to the said confederated tribes and bands of Indians five hundred dollars per year, for the term of twenty years after the ratification hereof, as a salary for such person as the said confederated tribes and bands of Indians may select to be their head chief, to build for him at a suitable point on the reservation a comfortable house, and properly furnish the same, and to plough and fence ten acres of land. The said salary to be paid to, and the said house to be occupied by, such head chief so long as he may continue to hold that office

Kamaiakun is the  
head chief

And it is distinctly understood and agreed that at the time of the conclusion of this treaty Kamaiakun is the duly elected and authorized

TREATY WITH THE YAKIMA, 1855.

head chief of the confederated tribes and bands aforesaid, styled the Yakama Nation, and is recognized as such by them and by the commissioners on the part of the United States holding this treaty, and all the expenditures and expenses contemplated in this article of this treaty shall be defrayed by the United States, and shall not be deducted from the annuities agreed to be paid to said confederated tribes and band of Indians. Nor shall the cost of transporting the goods for the annuity payments be a charge upon the annuities, but shall be defrayed by the United States

ARTICLE 6. The President may, from time to time, at his discretion, cause the whole or such portions of such reservation as he may think proper, to be surveyed into lots, and assign the same to such individuals or families of the said confederated tribes and bands of Indians as are willing to avail themselves of the privilege, and will locate on the same as a permanent home, on the same terms and subject to the same regulations as are provided in the sixth article of the treaty with the Omahas, so far as the same may be applicable

Reservation may be surveyed into lots and assigned to individuals or families

ARTICLE 7. The annuities of the aforesaid confederated tribes and bands of Indians shall not be taken to pay the debts of individuals.

Annuities not to pay for debts of individuals

ARTICLE 8 The aforesaid confederated tribes and bands of Indians acknowledge their dependence upon the Government of the United States, and promise to be friendly with all citizens thereof, and pledge themselves to commit no depredations upon the property of such citizens.

Tribes to preserve friendly relations

And should any one or more of them violate this pledge, and the fact be satisfactorily proved before the agent, the property taken shall be returned, or in default thereof, or if injured or destroyed, compensation may be made by the Government out of the annuities.

To pay for depredations

Nor will they make war upon any other tribe, except in self defence, but will submit all matters of difference between them and other Indians to the Government of the United States or its agent for decision, and abide thereby. And if any of the said Indians commit depredations on any other Indians within the Territory of Washington or Oregon, the same rule shall prevail as that provided in this article in case of depredations against citizens. And the said confederated tribes and bands of Indians agree not to shelter or conceal offenders against the laws of the United States, but to deliver them up to the authorities for trial

Not to make war but in self-defense

To surrender offenders

ARTICLE 9. The said confederated tribes and bands of Indians desire to exclude from their reservation the use of ardent spirits, and to prevent their people from drinking the same, and, therefore, it is provided that any Indian belonging to said confederated tribes and bands of Indians, who is guilty of bringing liquor into said reservation, or who drinks liquor, may have his or her annuities withheld from him or her for such time as the President may determine.

Annuities may be withheld from those who drink ardent spirits

ARTICLE 10. *And provided.* That there is also reserved and set apart from the lands ceded by this treaty, for the use and benefit of the aforesaid confederated tribes and bands, a tract of land not exceeding in quantity one township of six miles square, situated at the forks of the Pisuouse or Wenatshapam River, and known as the "Wenatshapam Fishery," which said reservation shall be surveyed and marked out whenever the President may direct, and be subject to the same provisions and restrictions as other Indian reservations.

Wenatshapam fishery reserved

ARTICLE 11. This treaty shall be obligatory upon the contracting parties as soon as the same shall be ratified by the President and Senate of the United States

When treaty to take effect

In testimony whereof, the said Isaac I. Stevens, governor and superintendent of Indian affairs for the Territory of Washington, and the undersigned head chief, chiefs, headmen, and delegates of the afore-

said confederated tribes and bands of Indians, have hereunto set their hands and seals, at the place and on the day and year hereinbefore written.

ISAAC I. STEVENS,  
Governor and Superintendent. [L s ]

Kamaiakun, his x mark	{ L s }	Wish-och-kmpits, his x mark.	{ L s }
Skloom, his x mark	{ L s }	Koo-lat-toose, his x mark	{ L s }
Owhi, his x mark	{ L s }	Shee-ah-cotte, his x mark	{ L s }
Te-cole-kun, his x mark	{ L s }	Tuck-quille, his x mark	{ L s }
La-hoom, his x mark	{ L s }	Ka-loo-as, his x mark	{ L s }
Me-ni-nock, his x mark	{ L s }	Scha-noo-a his x mark	{ L s }
Elit Palmer, his x mark	{ L s }	Sla-kish, his x mark.	{ L s }

Signed and sealed in the presence of—

James Doty, secretary of treaties,  
Mie Des Pandosy, O M T,  
Wm C McKay,  
W H Tappan, sub Indian agent, W T,  
C Chrouse, O M T,  
Patrick McKenzie, interpreter,  
A. D Pamburn, interpreter,  
Joel Palmer, superintendent Indian affairs, O T,  
W D Biglow,  
A. D Pamburn, interpreter

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## American Indian Religious Freedom

• Act of August 11, 1978 (P L. 95-341, 92 Stat. 469; 42 U.S.C. 1996(note))

Whereas the freedom of religion for all people is an inherent right, fundamental to the democratic structure of the United States and is guaranteed by the First Amendment of the United States Constitution;

Whereas the United States has traditionally rejected the concept of a government denying individuals the right to practice their religion and, as a result, has benefited from a rich variety of religious heritages in this country;

Whereas the religious practices of the American Indian (as well as Native Alaskan and Hawaiian) are an integral part of their culture, tradition and heritage, such practices forming the basis of Indian identity and value systems,

Whereas the traditional American Indian religions, as an integral part of Indian life, are indispensable and irreplaceable,

Whereas the lack of a clear, comprehensive, and consistent Federal policy has often resulted in the abridgment of religious freedom for traditional American Indians;

Whereas such religious infringements result from the lack of knowledge or the insensitive and inflexible enforcement of Federal policies and regulations premised on a variety of laws;

Whereas such laws were designed for such worthwhile purposes as conservation and preservation of natural species and resources\*but were never intended to relate to Indian religious practices and, therefore, were passed without consideration of their effect on traditional American Indian religions;

Whereas such laws and policies often deny American Indians access to sacred sites required in their religions, including cemeteries,

Whereas such laws at times prohibit the use and possession of sacred objects necessary to the exercise of religious rites and ceremonies;

Whereas traditional American Indian ceremonies have been intruded upon, interfered with, and in a few instances banned: Now, therefore, be it

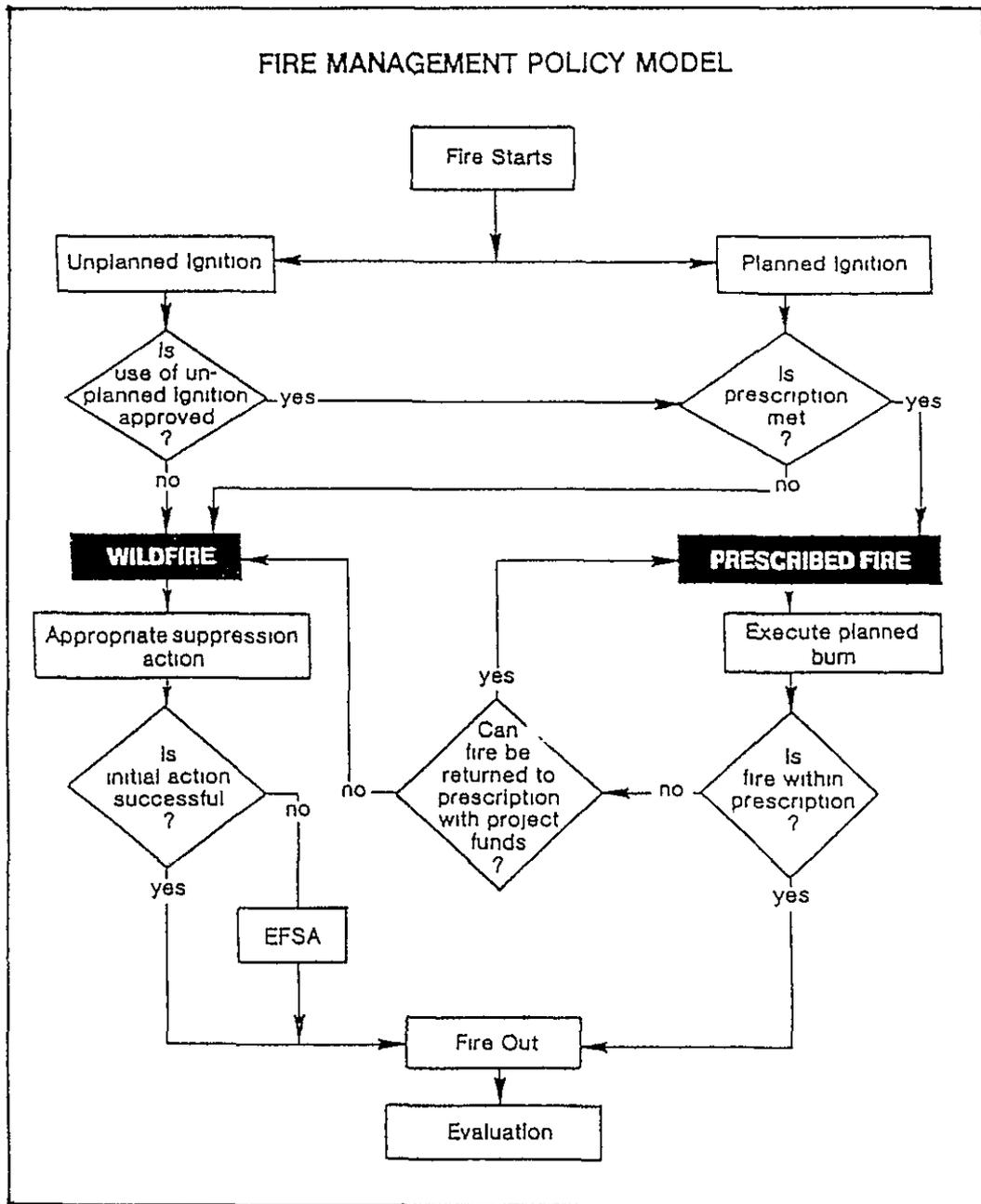
Resolved by the Senate and House of Representatives  
of the United States of America in Congress assembled,

That henceforth it shall be the policy of the United States to protect and preserve for American Indians their innerent right of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians, including but not limited to access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites.

Sec. 2. The President shall direct the various Federal departments, agencies, and other instrumentalities responsible for administering relevant laws to evaluate their policies and procedures in consultation with native traditional religious leaders in order to determine appropriate changes necessary to protect and preserve Native American religious cultural rights and practices. Twelve months after approval of this resolution, the President shall report back to the Congress the results of his evaluation, including any changes which were made in administrative policies and procedures, and any recommendations he may have for legislative action.

# APPENDIX D

The following is the fire management policy model (Matrix) referred to in the Protection section of Chapter IV.



# **APPENDIX E**

## **WILDERNESS MANAGEMENT**

### **A. WILDERNESS MANAGEMENT GOALS**

1. Manage wildernesses to perpetuate wilderness character and wilderness resource values.
2. Manage wildernesses to allow natural ecological processes to operate freely and as independently of human activity as possible.
3. Manage wildernesses to provide opportunities for recreation experiences appropriate in wilderness.

### **B. WILDERNESS MANAGEMENT OBJECTIVES**

1. Provide a variety of primitive recreation opportunities in a natural environment within the scope of the Wilderness Acts.
2. Provide a trail access system in wilderness that allows visitors to enjoy a variety of recreation experiences and minimizes negative impacts on wilderness resources.
3. Provide a range of challenges for wilderness users through trails of varying difficulty for foot, saddle and pack animal travel, and opportunities for cross-country travel.
4. Manage visitor use to ensure that physical and biological impact on the soil, vegetation, air, and water do not result in significant change in these resource values.
5. Manage visitor use to minimize social impact on recreation experiences and avoid user conflicts.
6. Restore and rehabilitate resource values degraded by present or past land management activity or recreation visitor use.
7. Manage human influences to maintain the system of natural processes that governs the distribution of plant communities and to insure that natural biotic communities and life cycles are undisturbed except by natural forces.

## **C. WILDERNESS RECREATION OPPORTUNITY SPECTRUM CLASSES**

Individual wildernesses vary greatly in their degree of wilderness or pristine character, degree of isolation from the sounds and influences of people, and amount of recreation visitor use. There are also significant differences within each wilderness. The Wilderness Recreation Opportunity Spectrum (WROS) provides a way to describe these variations through the establishment of classes and the defining of resource and social conditions that exist in each class. All areas within each wilderness have been analyzed for the characteristics that are present in these areas and the physical, biological, and social conditions that are judged by wilderness managers to be necessary for each area, in order to meet wilderness management objectives. These present conditions and future objectives are then delineated as a class. Possible classes range from Pristine to Transition.

### **1. PRISTINE**

The area is characterized as an extensive, unmodified, natural environment. Natural processes and conditions have not been measurably affected by the actions of users. The area will be managed as free as possible from the influences of human activity. Terrain and vegetation allow extensive and challenging cross-country travel.

This area provides the most outstanding opportunity for isolation, solitude, risk, and challenge. Encounters with other visitors will be infrequent.

There shall be no system trails in this class. Destination points will be accessed only by cross-country travel. Areas in this class are of sufficient size to assure a remote experience away from sights or sounds of human activity.

### **2. PRIMITIVE**

The area is characterized by an essentially unmodified, natural environment. Concentrations of visitors are low and evidence of human use is minimal. The area has high opportunity for isolation, solitude, exploration, risk, and challenge.

This class receives very low visitor use due to low density of system trails and difficult terrain.

This class provides the user outstanding opportunities for cross-country travel, utilizing a high degree of outdoor skills often in an environment that offers a high degree of challenge and risk.

### **3. SEMI-PRIMITIVE**

The area is characterized by a predominantly unmodified environment of at least moderate size. System trails and campsites are present and there is evidence of other uses. A minimum of on-site controls and restrictions are implemented to protect physical, biological, and social resources. Some facilities may be present to reduce visitor impact.

This class extends at least 500 feet on both sides of trail corridors, but may be wider around lakes, in drainage basins, and heavily used areas where the sights and sounds of people are noticed at greater distances.

A moderate to high degree of opportunity exists in this class for exploring and experiencing isolation from the sights and sounds of civilization. The environment offers a moderate to high degree of challenge and risk.

#### 4. TRANSITION

The area is characterized by a predominantly unmodified environment, however, the concentrations of visitors may be moderate to high at various times. The area is characterized as having a large number of day users who are often mixed with overnight and long-distance travelers on trails near trailheads and wilderness boundaries.

The transition area is generally small and extends into wilderness a short distance to where side trails begin to distribute use. The class extends at least 500 feet on both sides of a trail and may be wider around lakes or heavily used areas.

Opportunities for exploration and experiencing isolation are reduced and visitors can expect to encounter the greatest number of people compared to other WROS Classes. This class introduces users to the wilderness setting, but the higher standard trails offer reduced challenge and risk.

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**TABLE E-1**  
**ACRES IN EACH WILDERNESS RECREATION**  
**OPPORTUNITY SPECTRUM CLASS BY WILDERNESS <sup>1/</sup>**

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<b>Wilderness</b>	<b>Pristine</b>	<b>Primitive</b>	<b>Semi-Primitive</b>	<b>Transition</b>
<b>Lake Chelan-Sawtooth</b>	5,510	29,520	17,350	1,340
<b>Glacier Peak</b>	148,220	79,490	46,700	6,570
<b>Goat Rocks</b>	10,050	15,810	9,430	1,050
<b>Henry M. Jackson</b>	4,160	16,000	5,760	1,280
<b>Norse Peak</b>	12,780	14,420	8,500	-0-
<b>William O. Douglas</b>	27,200	93,580	29,480	1,300
<b>Total:</b>	<b>207,920</b>	<b>248,820</b>	<b>117,220</b>	<b>11,540</b>

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<sup>1/</sup> Allocations for Alpine Lakes Wilderness are identified in the Alpine Lakes Management Plan.

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#### **D. GENERAL WILDERNESS MANAGEMENT**

The wilderness Standards and Guidelines and management direction for the Wenatchee National Forest were coordinated with the Mt. Baker-Snoqualmie, Gifford-Pinchot, and Okanogan National Forests since the Cascade wildernesses in Washington State are located on portions of all four Forests.

The direction in this section applies to all wildernesses on the Forest except for the Alpine Lakes. Direction for management of this wilderness is contained in the Alpine Lakes Area Land Management Plan.

## **1. RECREATION**

Wilderness provides unique and highly favored recreational experiences, however, recreational use of wilderness must be closely managed and monitored to assure that degradation of resource values does not occur. The following standards and guidelines are established to help achieve this end.

- a. If monitoring of on-site conditions indicates that wilderness resource values are being degraded or changed to a point that limits of acceptable change are being closely approached, management actions must be implemented to reverse the declining trend. Recreational visitor activities may be regulated, reduced, or excluded from specific sites or areas. Management actions designed to solve user impact problems will generally be fully implemented before entry quota systems are employed. (See Section H.)
- b. Visitor entry permit quotas should generally be applied to heavy use areas before they are applied to an entire wilderness.
- c. If it becomes necessary to establish priorities for wilderness visitation, highest priority should be given to uses which (1) least alter the wilderness environment and (2) are activities dependent upon the wilderness environment to be fully realized. Other uses should be encouraged to occur outside wilderness.
- d. Proposed temporary structures, such as corrals, hitch rails, or toilets must be necessary for the protection of wilderness resources and not for the convenience of users. Structures, if appropriate to the WROS Class, must be built of native or natural appearing materials and harmonize with the environment.
- e. Recreation visitors should not be permitted to cache or store equipment, personal property or supplies in wilderness. Caching is defined as leaving equipment unattended for more than 48 hours.
- f. Deviations or waivers from party size limitations may be approved by District Rangers. Waivers should consider the following criteria: (1) Capability of site and/or routes to withstand environment impacts, (2) Heavy use periods, (3) Heavy use areas, (4) Other parties on same route or destination at the same time, (5) Other visitors seeking solitude, (6) Areas not easily dominated by an oversized party, (7) Capacity of an area for camp sites and forage for livestock, (8) Action cannot be held outside wilderness, (9) Inter-district trips must be coordinated. Waivers should in no situation allow party size to exceed 12 people and 18 head of stock.

The following criteria should be used when considering waivers to allow caching of equipment in wilderness for a period longer than 48 hours.

1. Granting of the waiver is part of a managed corrective action aimed at getting control of historical occupancy and use problems.
2. The requested area is not highly controversial with the public.
3. The requested area is not located where there is frequent competition for available sites.
4. The site can accommodate the planned use.
5. The waiver will not exceed a length of stay prohibited by another order, ie: 14 Day Stay limit.
6. The site is not located in high visibility areas such as trail foregrounds, mountain passes or critical meadows.
7. The waivers can be monitored for compliance.
8. The waiver will facilitate an important wilderness enjoyment purpose, for which reasonable alternatives are lacking.

## **2. ADMINISTRATION**

Ranger Districts will prepare annual Wilderness Management Action Plans for each wilderness. These plans will identify planned administrative actions, project work, and various management activities. Action Plans will be approved by the District Ranger.

Management activities and regulations should be coordinated with adjoining National Forests and Ranger Districts sharing management of wildernesses to ensure reasonable uniformity where necessary.

*All administrative activity shall be conducted to minimize impact on social and biological resources.* Wilderness Ranger patrols will conform to the Management Controls direction identified for each WROS Class.

Facilities such as cabins, trail shelters, or corrals, will not be constructed or maintained for administrative purposes. The wildernesses of the Forest are not of sufficient size or of sufficient logistical complexity to warrant these structures in wilderness.

Forest management activities outside of wilderness that influence the administration and visitor use of wilderness, will carefully consider potential negative impacts on wilderness resources in the planning phases.

Temporary signs, twine, stakes, matting, etc., used in site rehabilitation, may be necessary to inform the public and meet revegetation objectives. Visitor awareness of on-going rehabilitation projects should begin with District Receptionists and be carried through in trailhead information and wilderness Ranger contacts.

Permitted, but non-conforming, uses specified in the Wilderness Act will be administered to minimize negative impacts on wilderness. They will be reviewed and acted upon on a case-by-case basis.

## **3. SIGNING**

Rough cut, chamfered edge, unfinished white oak shall be the standard sign material in wilderness. Lettering should be routed and scorched to a blackened color. Pacific Crest National Scenic Trail logo will be branded on white oak.

White oak signs should be placed on trees whenever possible. Where posts are necessary, use untreated native material that will weather over time.

All existing signs should be individually evaluated to determine if they meet signing objectives. Signs that do not meet the design and material standards should be scheduled for replacement with the objective of having all signs up to standard in three to five years. The number of signs should conform to standards for each WROS Class. The users should be allowed appropriate opportunities for discovery.

Mileages shall not be placed on signs within wilderness.

Signs needed for management and regulation of use, including site restoration areas and trail closures, shall be the minimum size possible, be easily seen and shall be installed to minimize both physical impact on the site and psychological impact on the users. Whenever possible, universal symbols should be used and signs worded in a positive tone. Signs will be removed when their purpose is completed.

Direction signs at system trail junctions should be limited to two per junction with a maximum of two route indicators per sign. Signs should not be used to direct users to trailless areas or to destinations on non-system trails.

Wilderness boundary signs should be placed at sufficient locations and distances so that outside activities will not encroach upon the wilderness. In the case of other management activities, project planning should include boundary posting.

Identification of hazardous stream crossings, trail conditions, prescribed fires or other information for the benefit of wilderness visitors will occur at trailhead bulletin boards or in recreation information handouts.

Emergency signing may be posted in the most logical place to be readily observed by Wilderness visitors.

#### **4. CULTURAL RESOURCES**

The preservation of cultural resources for enjoyment and educational purposes is an objective of wilderness designation. Historical structures and Native American sites must be managed and protected in accordance with State and Federal Law, and also in keeping with the intent of the Wilderness Act. All structures that have potential historical significance should be inventoried and evaluated. After evaluation, any decision to abandon or remove structures which meet the criteria for the National Register shall be preceded by the process outlined in 36 CFR 800. Any retained or maintained structure shall be managed to have a minimum impact on wilderness resources. If it is determined, after appropriate evaluation, that a structure is not of significance, it may be removed by a practical method compatible with the Wilderness Management Objectives. The decision to allow a structure that has cultural significance to gradually deteriorate is a management decision that must be preceded by proper evaluation.

Native American sites discovered at campsites or recreation use areas need to be protected and evaluated according to State and Federal laws.

#### **5. TRAILS, BRIDGES, AND TRAVEL**

Trails in wilderness are facilities or structures that allow adequate access for purposes of recreational use and enjoyment, and provide access for protection and administration. As well as providing access to destination points, trails can contribute to the recreation experience for many users. Trails, although generally necessary, do constitute a significant impact on physical and biological resources. Trails must be maintained, reconstructed, relocated, or new trails constructed in a manner that minimizes the impact on soil, water, vegetation, and wildlife. Trails must be safe enough to accommodate the planned use but should also contribute to the risk and challenge of wilderness travel.

Trail purpose and management objectives will be established for each trail. These objectives will be key factors in determining the standard and maintenance level for each trail.

Trails will be managed to maintain a balanced spectrum of travel opportunities in accordance with WROS Class criteria, trail objectives, mode of travel, and destinations.

Trails should be reconstructed, rerouted, or eliminated as needed to protect the wilderness resource and meet the objectives of each WROS Class. Priorities should be identified in the Wilderness Action Plans.

Bridge and footlogs may be provided to meet Wilderness Management Objectives and when no other route or crossing is reasonably available for visitor safety. Bridges should not be installed for visitor convenience or installed to extend the use season unless necessary to meet management objectives.

Trail locations and relocations should avoid wet areas and meadows. New trail drainage structures should be constructed of native materials and designed to minimize visual obtrusiveness. Existing metal or fiber drainage structures will be replaced where trail reconstruction becomes necessary and will be hidden from view until replaced.

Existing trails no longer needed or no longer compatible with WROS objectives should be restored to as near natural state as possible and monitored for use periodically.

The Pacific Crest National Scenic Trail shall be maintained to conform with the Wilderness Management objectives for the area which the trail passes through. Trail objectives and WROS class criteria will be the guiding direction for maintenance standards.

## **6. VEGETATION**

Care should be taken to avoid the introduction of non-native plant species into wilderness. To minimize the possibility of accidental introduction through saddle and pack animal feed, the use of hay and unprocessed grain will be prohibited.

The use of processed grains and pelletized feed should be included in information provided to horse and pack animal users and outfitter-guide operations.

The areas surrounding campsites should be closely monitored for the presence of a near natural component of dead, deteriorating, woody debris. Areas lacking this component will be closed to campfires until natural accumulation recovers and excess wood is available. This requires some subjective judgment and is a factor in monitoring impact of visitor use.

## **7. FISH AND WILDLIFE**

The Forest and Ranger Districts shall continue to work closely with the Washington State Departments of Wildlife and Fisheries in all aspects of fish and game management in wilderness. Ranger District action plans shall address specific coordination needs. Recommendations to State agencies will be based on protection of wilderness resources. Hunting, trapping, and fishing shall be permitted in accordance with State laws and regulated by State Agencies.

Management of native wildlife species is stressed. Wildlife species may be reintroduced if the species was once indigenous to an area and was eliminated through man's influence. Mechanized or motorized transport may be used with Regional Forester approval for reintroductions if use of non-motorized equipment is not feasible. Reintroduction should favor federally listed threatened or endangered species.

Fish stocking programs in lakes or streams should be developed in coordination with the State and in concert with Wilderness Management Objectives. This coordinated planning will be documented in annual action plans. Fish stocking programs will be administered under the direction provided in FSM 2323.34.

Fish and wildlife habitat manipulation projects can occur if they are done to perpetuate wilderness resources, to change a condition resulting from abnormal human influences, and if they meet the criteria identified in FSM 2323.35. These projects require approval from the Chief of the Forest Service. 

Trails and camping areas should be located so as not to reduce wildlife habitat effectiveness.

## **8. RECREATION LIVESTOCK GRAZING**

Education of saddle horse and pack animal users will be an emphasis item during the life of this plan. Grazing and tethering of recreation livestock have the potential to result in significant impact on vegetation, soil, and water resources in a very short time period.

Horse and pack animal users should follow, at a minimum, the following practices:

- a. Avoid picketing or tying animals to feed in one location for a long period of time. Hobble animals or allow them to roam free during feeding periods.
- b. Do not graze, hitch, tether, or hobble any pack or saddle livestock within 200 feet slope distance of the shoreline of any lake.
- c. Tie stock on well-placed high lines during periods when not feeding.
- d. Feed animals in nose bags or feed bags to avoid littering a site.

Horse and pack animal users should generally be encouraged to pack in their basic feed supply for a trip, relying on available forage as a supplement. In heavily used areas and areas where forage is in short supply, the total feed needs of the animals should be packed in. Packing in feed usually requires additional animals. In making decisions regarding feed packing requirements, be mindful of the potential physical and biological impact of additional animals as well as the larger party size.

## **9. PERMITTED LIVESTOCK GRAZING ALLOTMENTS**

Grazing allotments authorized within wilderness will be managed to blend with Wilderness Management Objectives. Forage utilization by permitted livestock will not be allowed to result in vegetative change that constitutes degradation of wilderness resource values.

Allotment Management Plans will address all stocking levels, maintenance and reconstruction of range improvements, and allotment management practices necessary on the allotments. These plans will describe all management activities necessary to meet allotment objectives and Wilderness Management Objectives.

Forage utilization will be monitored in the process of allotment inspection. Appropriate adjustments in grazing systems or permitted livestock numbers will be made to assure the protection of wilderness resource values.

## **10. WATER QUALITY**

Human activity should not influence the natural quality of any waters within wilderness beyond temporary changes that return to normal when activity ceases.

Constructed facilities such as trails or high-use campsites have high potential to result in accelerated erosion rates that are detrimental to water quality. Areas used by recreation visitors will be closely observed for evidence of accelerated erosion. Water sources and water bodies near campsites should be observed for evidence of soap, other chemicals, and biological contaminants that may be introduced by human activity.

Wilderness Action Plans will identify management actions to be implemented to correct water quality problems. Methods will be developed in the future to monitor physical, chemical, and biological changes in water quality.

## **11. AIR QUALITY**

*Air quality in wilderness resulting from outside activities will be maintained to the Federal Clean Air Act and State Air Quality Standards.*

Air quality impact resulting from recreation use, generally campfire smoke, will not be allowed to significantly deteriorate the recreation experience of wilderness visitors. Wilderness Action Plans will identify management actions to be implemented should excessive reduction of air quality occur.

Research is currently in planning phases to develop technology and methods to monitor air quality. Air quality related values have been identified for each Class I Wilderness and monitoring protocols are being developed.

## **12. FIRE MANAGEMENT**

Natural fires have been an important force in the determination and evolution of the ecosystems present in wilderness. Fire suppression actions conducted since the early 1900's have had significant influence on these natural processes. In an effort to reduce the influences of fire suppression on wilderness ecosystems, a program of fire management has been developed (FSM 2324).

The objectives of fire management in wilderness are to:

- a. Permit lightning-caused fires to play, as nearly as possible, their natural ecological role in wilderness.
- b. Reduce, to an acceptable level, the risks and consequences of wildfire within wilderness or escaping from wilderness.

Upon completion of Wilderness Fire Management Plans, naturally occurring fires will be managed as prescribed fires as long as Wilderness Fire Management Objectives are being met (FSM 2324.21). Wildfires or fires burning outside of prescribed conditions will be suppressed. Each natural occurring fire will be considered a prescribed fire until declared a wildfire. Under specific conditions, described in Wilderness Fire Management Plans, prescribed fires may be ignited by forest managers to meet specific wilderness objectives (FSM 2324.22). The cumulative effects of prescribed fire will be considered in the development of decision criteria for fire management plans.

Human caused fires (not ignited by management) will be suppressed.

Fire managers will implement suppression strategies which minimize resource loss and the cost of fire suppression. Suppression tactics will be employed that minimize impacts on Wilderness resource values.

Before natural occurring fires can be managed as prescribed fires, detailed fire management action plans will be prepared for each wilderness; except the Alpine Lakes Wilderness, which has an approved Fire Management Plan. These plans will identify the preplanned specific conditions that must first exist before a fire can be managed as a prescribed fire. Outside of these specific parameters and conditions, fires will be declared wildfires and suppressed. Prescribed fire management will be conducted under conditions defined in FSM 2324.2.

### **13. RESEARCH**

Research projects in wilderness require approval by the Regional Forester. Those applications for research that are wilderness dependent and compatible with Wilderness Management Objectives will be recommended for approval.

Research that helps resolve wilderness management problems or basic research on wilderness resources shall be given highest priority.

Data collected for management purposes, such as use figures and ecological data, should be made available to scientists for research purposes.

All research projects which require public contact, specimen collection, ground reference marking, or exemption from any regulations shall be conducted under a Special-Use Permit.

### **14. RECREATION SPECIAL-USE PERMITS**

Recreation Special-Use Permits may be issued for specific recreation activities which are appropriate in wilderness, wilderness dependent, and in conformance with management objectives. Activities most typical are outfitter-guide operations.

Permits will not be issued for recreation events and competitions such as endurance races, competitive trail rides, rock climbing competition, running events, military exercises, or survival exercises.

### **15. OUTFITTER-GUIDE PERMITS**

Permitted outfitters and guides provide valuable recreation opportunities for a segment of the public who do not have the expertise, equipment, or physical capabilities to enjoy these experiences on their own. Many of these opportunities are appropriate in wilderness within certain parameters, and many are dependent on the wilderness environment. Outfitter guides will continue to provide recreation opportunities in response to public demand for these opportunities.

Outfitter-Guide Permits should be issued or continued when:

- a. There is a demonstrated public need or demand for the service.
- b. Permitted use is compatible with general public use.
- c. Permitted use can occur in an area without exceeding the carrying capacity of an area in Persons-At-One-Time.
- d. Permitted use will not generate unacceptable impact on wilderness resources or changes that approach limits of acceptable change.

The number of permits issued and the amount of use allocated to permit holders should be evaluated periodically to assure an appropriate balance is maintained between general public use and outfitter use. Outfitter guides should not be allowed to dominate the use of an area or occupy favored campsites to the point that use by the general public is limited or constrained.

Outfitter-guide camps should be located away from other popular visitor campsites to reduce social resource impact.

Outfitter-guide permittees should actively assist in the education of wilderness visitors, within the scope of their operations.

Outfitter-guide operations will generally be required to adhere to established party size limitations and use conditions specified for each wilderness. Any deviation from caching or party size limitations must be documented in the annual operating plan and approved by the District Ranger.

## **16. VISUAL OBJECTIVES/SCENIC QUALITIES**

The visual and scenic qualities present in wilderness are very significant to the quality of the recreation experience achieved by visitors. Recreation visitors should be encouraged through educational information and contacts to follow a few basic principles:

- a. Locate campsites away from and out of site of, trails, lakeshores, other campsites, and other points of interest.
- b. Tie or high-line horses and pack animals out of sight of trails, lakeshores, campsites and other points of interest.
- c. Leave no trace or evidence of their visit.
- d. Use equipment that is earth tones in color; avoid bright reds, oranges, blues and yellows.

Facilities and structures built for protection of resource values should be located to the extent practical in areas where visual impact will be minimal.

Trails should be located to take advantage of outstanding views or scenic features of high interest.

Natural events and processes such as rock slides, avalanches, tree mortality due to insects and disease, or fire, will change the visual conditions present. These natural occurrences will not be considered as detrimental to visual qualities. Special management actions should not be taken to mitigate or repair visual damage.

## **17. MINERALS AND ENERGY**

Wilderness areas designated as such under the Wilderness Act were withdrawn from mineral entry on January 1, 1984. New wilderness areas established by the Washington State Wilderness Act were withdrawn from mineral entry as of the date of that Act of 1984. Except when valid prior-existing rights have been established and confirmed (eg, valid mining claims located or mineral leases issued prior to the date of withdrawal), wilderness-impacting mineral and energy resource exploration and development, mining claim location and mineral leasing are precluded. Valid existing rights for leases and permits will depend upon the date of issuance. Valid existing rights for mining claims will be determined by ensuring the date of location precedes the date of withdrawal, by ensuring all mining claim recording requirements have been met, and by confirming through a mining claim validity examination that a "discovery" of a valuable mineral was made prior to the date of withdrawal.

When proposed mineral-related activities require the use of mechanized or motorized equipment or will cause impacts to the wilderness characteristics, a plan of operation must be submitted, processed and approved. During the evaluation of such a proposal not only will the environmental consequences be assessed and valid existing rights to conduct such activity confirmed prior to approval, but a determination will be made as whether the use of such equipment is reasonably necessary for and incidental to the level of exploration or development activity being proposed.

Management objectives for the administration of mineral activity in wilderness are as follows:

- a. Mineral-related activities will be administered in compliance with all appropriate laws, regulations and Forest Service policy concerning wilderness management and the mining and mineral leasing laws.
- b. Those conducting mineral related activities will be required to meet all Federal and State water quality standards, and will be required to reasonably minimize any adverse impacts to wildlife habitat and the wilderness characteristics of the area.
- c. In keeping with any valid existing rights to operate mining claims or mineral leases, administrative efforts will be made to minimize any conflict between the mineral and the recreation users of wilderness areas.
- d. When mineral-related valid existing rights have been confirmed, they will be recognized; and our policy will be to encourage and facilitate those activities while ensuring any adverse impacts to wilderness are minimized. In meeting this objective the technological feasibility and the cost of implementing any enforceable controls will be considered and kept to a reasonable level.
- e. As time permits or as wilderness-impacting activities are proposed, valid existing rights on all unpatented mining claims located within wilderness areas will be evaluated. As part of the validity determination process, mining claimants will be contacted and given an opportunity to participate in that process.

## **18. WILD AND SCENIC RIVER CLASSIFICATION**

Sections of rivers within wilderness are being recommended for classification as Wild Rivers under the Wild and Scenic Rivers Act. The designation of river segments as Wild Rivers is compatible with wilderness designation. Management decisions regarding land use or appropriate recreation activities will be directed by the act which has the most restrictive language regarding a specific question. Impoundment of rivers, which could be approved by the President under the Wilderness Act, Section 4(d)(4), would not be authorized on a river in wilderness designated Wild under the Wild and Scenic River Act, Section 7. Recreation use of a designated Wild River in wilderness may be regulated, if such use is creating impacts on wilderness resources that is not in keeping with the Wilderness Act. Management activities and recreation use impacts that occur on wild river segments within wilderness will be monitored for compliance with both Acts.

## **19. INSECTS AND DISEASE**

There are three primary objectives in the management of insects and plant diseases in wilderness:

- a. Allow indigenous insect and plant diseases to play, as nearly as possible, their natural ecological role within wilderness.
- b. Protect the scientific value of observing the effect of insects and disease on the ecosystems.
- c. Control insect and plant disease epidemics that threaten adjacent lands or resources outside wilderness, or exotic pests that threaten an unnatural loss of wilderness resources.

When control measures are necessary in wilderness, they shall be carried out by measures that have the least adverse effect on wilderness resources and are compatible with Wilderness Management Objectives. Refer to FSM 2324.04, 2324.1, 2151, 3430, 1950.

## **20. THREATENED AND ENDANGERED SPECIES**

Many wildernesses provide important habitat for threatened and endangered species of plants and wildlife. Actions necessary to protect or recover threatened or endangered species, including habitat manipulation and special protection measures, may be implemented in wilderness. Such actions must be necessary for perpetuation or recovery of the species and be actions that cannot be done more effectively outside wilderness. Refer to FSH 2309.19, 23.14, and 24.1.

## **21. SEARCH AND RESCUE**

Search and rescue activities on National Forest Lands come under the jurisdiction of the County Sheriff in the county where an incident has occurred. The role of the Forest Service is to provide assistance, when requested, within the scope of the 1962 Memorandum of Understanding between the Forest Service and the Washington State Sheriff's Association. Procedures to follow in the event of a request for assistance from a Forest visitor in an emergency situation, are described in the Forest Mobilization Plan. Specific District procedures should be included in Annual Wilderness Action Plans.

Requests for use of motorized equipment or helicopters in search and rescue activities in wilderness, must be approved by the Forest Supervisor.

## **E. MANAGEMENT SPECIFIC TO EACH WROS CLASS**

### **1. PRISTINE**

#### **a. Physical-Biological Standards**

##### **(1) Vegetation**

- (a) Area of vegetation loss, and compacted bare mineral soil at any campsite, should not exceed 225 square feet.
- (b) Trampled area of vegetation with season recovery should not exceed 400 square feet.
- (c) No loss of trees, or trees with exposed roots at any campsite.
- (d) No noticeable modifications of natural plant succession due to stock grazing or human activity.
- (e) No loss of dead trees or noticeable loss of dead, woody debris due to campfires.

##### **(2) Soils**

- (a) Displacement and erosion of soil resulting from human activity will be limited to a rate that approximates the natural process.
- (b) Soil compaction should not occur in this class outside existing established campsites.

##### **(3) Water Quality**

There should be no measurable change in water quality due to human activity.

##### **(4) Air Quality**

Air quality will not be degraded as a result of campfire smoke, or Forest Service Management activities outside of wilderness in Class I areas.

##### **(5) Fish and Wildlife**

Visitor use shall seldom and only temporarily displace wildlife populations.

##### **(6) Visual Impact and Scenery**

- (a) No campsites should be visible from any other campsite.
- (b) Human activity inside Wilderness should remain subordinate in foreground viewing and not be recognizable in middle-ground viewing areas.

## **(7) Livestock Allotment**

This class should not include commercial livestock allotments so that the area is free as possible from human influences and to maintain the total integrity of natural ecological processes.

## **b. Social Standards**

### **(1) Encounters**

*There should be an 80 percent probability that not more than one individual or party will be encountered per day during the primary use season.*

### **(2) Party Size**

The maximum party size shall not exceed a combination of 12 people and/or livestock, (12 people and 18 animals in the Lake Chelan-Sawtooth Wilderness). A total of not more than six people will be encouraged in this class, and use of stock will not be encouraged for cross-country travel.

### **(3) Campsites**

There shall be no other campsites visible or audible from any campsite. New user developed campsites will not be allowed to become established. When found, fire rings and tent frames will be disassembled and dispersed.

### **(4) Pets**

Pets must be under reliable voice control or physical restraint. Pets may be banned from this class for protection of wildlife or to avoid other resource impact.

## **c. Managerial Standards**

### **(1) Regulations and Information**

(a) *Posting of information and regulations regarding this class will be located at trailheads.*

(b) *Formal orders and permits may be required to achieve management objectives in this class.*

(c) *Ranger patrols and administrative contacts should be rare in this class and kept to the minimum necessary to meet management objectives.*

(d) *Signs will generally not be present, but may be used in rare circumstances to protect Wilderness resources.*

(e) *Recreation visitor travel routes will not be readily noticeable or may appear to be wildlife trails.*

## **(2) Trails**

There shall be no system trails in this class. User travel should be managed so that travel routes are not readily apparent or appear to be wildlife trails.

## **(3) Resource Protection Facilities**

Facilities such as stock holding corrals are not appropriate in this class. Areas receiving visitor use numbers sufficient that facilities are necessary to protect resources should not be classified Pristine, or use should be controlled to maintain pristine conditions.

Temporary signs may be necessary to inform visitors of soil and vegetation rehabilitation projects.

## **2. PRIMITIVE**

### **a. Physical-Biological Standards**

#### **(1) Vegetation**

(a) Area of vegetation loss, and compacted bare mineral soil at any campsite should not exceed 400 square feet.

(b) There should be no loss of trees at any site and fewer than four trees with exposed roots per impacted site.

(c) No noticeable, long-term modification of natural plan succession as a result of livestock grazing or human activity.

(d) Dead trees or dead, woody debris may be utilized for campfires in amounts that can be replaced annually through natural accumulation.

#### **(2) Soils**

(a) Displacement and erosion of soil resulting from human activity will be limited to a rate that approximates natural processes.

(b) Soil compaction should not exceed limits which will prevent natural plant establishment and growth except at well established campsites.

#### **(3) Water Quality**

There should be no change in water quality except for temporary changes that return to normal when activity ceases.

#### **(4) Air Quality**

Air quality will not be degraded as a result of campfire smoke, or Forest Service Management activities outside of wilderness in Class I areas.

**(5) Fish and Wildlife**

Visitor use may temporarily displace wildlife, but should not displace wildlife from critical habitat during critical periods. (Such as fawning and winter range.)

**(6) Visual Impact and Scenery**

(a) Campsites will occasionally be visible from other campsites.

(b) Human activity should remain subordinate in foreground viewing and not recognizable in middle-ground viewing.

**(7) Livestock Allotments**

Commercial livestock is permitted in this class under approved management plans to the extent that this use is compatible with Wilderness resource values.

**b. Social Standards**

**(1) Encounters**

There should be an 80 percent probability that not more than either seven parties or seven individuals traveling alone will be encountered per day during the primary use season.

**(2) Party Size**

The maximum party size shall not exceed 12 people and/or livestock combined, (12 people and 18 animals in the Lake Chelan-Sawtooth Wilderness).

**(3) Campsites**

There shall be no more than one campsites visible or audible from any campsite, or closer than 500 feet in open country.

**(4) Livestock**

Grazing stock is permitted except in established camp areas. Repeated stock use in cross-country travel by a single route shall be discouraged.

**(5) Pets**

Pets must be under reliable voice control or physical restraint. Pets may be banned from this class for protection of wildlife or to avoid other resource impact.

### **c. Managerial Standards**

#### **(1) Regulations and Information**

- (a) Posting of information and regulations regarding this class will be located at trailheads.
- (b) Formal orders and permits may be required to achieve management objectives in this class.
- (c) Ranger patrols and administrative contacts will occur periodically. Personnel involved in project work or monitoring will be present. Management personnel should conform to party size limitations and social standards for this class.
- (d) Signs will be kept to the minimum to protect Wilderness resources. No signs will be provided to indicate destinations.
- (e) Visitor travel routes may be noticeable, but should appear as wildlife trails.

#### **(2) Trails**

System trails are present in this class generally at low density. Some user developed trails may exist, but are not encouraged for use and rarely upgraded to system trails. If user-developed trails become well established, management action should be taken to rehabilitate damage and discontinue use. Reroutes of existing trails may be done to protect resources or to meet wilderness objectives. New trail construction in trailless drainages or to new destinations must be considered in the Forest Planning process.

#### **(3) Resource Protection Facilities**

Facilities that are essential for resource protection and visitor safety are appropriate in this class. Only native or natural appearing construction materials will be used. There will be no facilities provided for user comfort or convenience.

### **3. SEMI-PRIMITIVE**

#### **a. Physical-Biological Standards**

##### **(1) Vegetation**

- (a) Area of vegetation loss, and compacted bare mineral soil at any campsite, should not exceed 625 square feet.
- (b) There should be no loss of trees at any site and only six trees per site with roots exposed or which show signs of human use impact.
- (c) There should be no long-term modification of plant succession and only short-term modification due to human activity or livestock grazing that can recover in one growing season.
- (d) Dead trees or dead, woody debris may be utilized for campfire wood in amounts that can be replaced annually through natural accumulation.

**(2) Soils**

(a) Displacement and erosion of soil resulting from human activity will be limited to a rate that approximates natural processes.

(b) Soil compaction should not exceed limits which will prevent natural plant establishment and growth, except at desired campsites, and in designated trail treads.

**(3) Water Quality**

There should be no change in water quality except for temporary changes that return to normal when activity ceases.

**(4) Air Quality**

Air quality will not be degraded as a result of campfire smoke or Forest Service Management activities outside of wilderness in Class I areas.

**(5) Fish and Wildlife**

(a) Visitor use should not displace wildlife from critical areas during critical periods.

(b) Riparian areas should appear to be unchanged by human or livestock use.

(c) Displacement of wildlife due to visitor use may be significant but should be of short duration to assure a natural ecosystem is maintained. Visitor use should not decrease habitat effectiveness for one species more than 20 percent.

**(6) Visual Impact and Scenery**

(a) Campsites will be visible at times from other campsites.

(b) Human activity in wilderness, should remain generally subordinate in foreground viewing and not recognizable in middle-ground viewing.

**(7) Livestock Allotments**

Commercial livestock is permitted in this class under approved management plans to the extent that such use is compatible with all resource values.

**b. Social Standards**

**(1) Encounters**

There should be an 80 percent probability that not more than either ten parties or ten individuals traveling alone, will be encountered per day during the primary use season.

**(2) Party Size**

The maximum party size shall not exceed 12 people and/or livestock combined, (12 people and 18 animals in the Lake Chelan-Sawtooth Wilderness).

**(3) Campsites**

There shall be no more than two campsites visible or audible from any campsite, or closer than 500 feet in open country.

**(4) Livestock**

Grazing of stock is permitted except in established camp areas.

**(5) Pets**

Pets must be under reliable voice control or physical restraint. Pets may be banned from this class for protection of wildlife or to avoid other social or biological impact.

**c. Managerial Standards**

**(1) Regulations and Information**

(a) Posting of information and regulations regarding this class will generally be done at trailheads. Some regulatory signing may be posted at key locations such as lakeshores and campsites to help gain user compliance.

(b) Formal orders and permits may commonly be used to achieve management objectives in this class.

(c) Ranger patrols and administrative contacts will occur more frequently in this class, particularly at popular destination points and on weekends during the primary visitor use season. Personnel involved in project work or monitoring activities will be present. Major work projects should be planned as much as possible during low visitor-use periods. Management personnel should conform to party size limitations and be aware of their potential to impact visitor experiences.

**(2) Trails**

The managed trail system should be maintained or constructed toward more and most difficult trail standards (FSH 2309.18). However, trails classified easiest may exist in areas of gentle terrain and valley bottoms. A variety of user restrictions may be implemented to resolve negative resource impacts.

**(3) Resource Protection Facilities**

Facilities will be as natural appearing as possible or will be constructed out of native material. No facilities will be constructed for user convenience or comfort. Facilities will be placed so as to concentrate heavy impact on areas previously impacted and on sites capable of withstanding high impacts.

## 4. TRANSITION

### a. Physical - Biological Standards

#### (1) Vegetation

- (a) Area of vegetation loss, and compacted bare mineral soil at any campsite, should not exceed 1000 square feet.
- (b) There should be no loss of trees at any site and only ten trees per site with roots exposed or which show signs of human use impact.
- (c) There should be no noticeable long-term modification of plant succession and only short-term modification due to human activity or livestock grazing, that can recover in one growing season.
- (d) Dead trees, or dead woody debris, may be utilized for campfire wood in amounts that can be replaced annually through natural accumulation.

#### (2) Soils

- (a) Displacement and erosion of soil resulting from human activity will be limited to a rate that approximates natural processes.
- (b) Soil compaction should not exceed limits which will prevent natural plant establishment and growth, except at desired campsites, and on designated trail treads.

#### (3) Water Quality

There should be no change in water quality except for temporary changes that return to normal when activity ceases.

#### (4) Air Quality

Air quality will not be degraded as a result of campfire smoke, or Forest Service Management activities outside of Wilderness in Class I areas.

#### (5) Fish and Wildlife

- (a) Visitor use should not displace wildlife from critical habitat areas during critical periods. If conflicts occur, management actions should be implemented to reduce the impact.
- (b) Riparian areas should appear to be unchanged by human or livestock use.
- (c) Displacement of wildlife due to visitor use may be significant but should be of short duration to assure a natural ecosystem is maintained. Visitor use should not decrease habitat effectiveness for one species more than 20 percent.

**(6) Visual Impact and Scenery**

(a) Campsites will be visible at times from other campsites.

(b) Human activity should remain generally subordinate in foreground viewing and not recognizable in middle-ground viewing.

**(7) Livestock Allotments**

Commercial livestock is permitted in this class under approved management plans to the extent that grazing use is managed to protect wilderness resource values.

**b. Social Standards**

**(1) Encounters**

There should be an 80 percent probability that not more than either 10-20 parties or 10-20 individuals traveling alone, will be encountered per day during the primary use season. Generally encounters should not exceed 10, however, in unique situations, encounters may reach 20 per day.

**(2) Party Size**

The maximum party size will not exceed 12 people and/or livestock combined, (12 people and 18 animals in the Lake Chelan-Sawtooth Wilderness).

**(3) Campsites**

There shall be no more than three campsites visible or audible from any one campsite, or closer than 500 feet in open country.

**(4) Livestock**

Grazing of stock is permitted except in camp areas.

**(5) Pets**

Pets must be under reliable voice control or physical restraint. Pets may be banned from this class for protection of wildlife or to avoid other biological or social impact. Visitors will be encouraged to leave pets at home in areas of higher visitor use.

**c. Managerial Standards**

**(1) Regulations and Information**

(a) Posting of information and regulations will generally be posted at trailheads but some regulatory signing may be necessary in key impact areas, or areas where there is potential for use conflicts.

(b) Formal orders and permits will commonly be used to achieve management objectives and visitor compliance in this class.

## **(2) Administrative Presence**

(a) Ranger patrols and administrative contacts will occur most frequently in this class, particularly in high day-use areas and popular destination points. Personnel involved in project work and monitoring activities will be present.

(b) Work projects should be planned to be completed during low visitor use periods to minimize impact on visitors.

(c) Management personnel should conform to party size limitations and be aware of their potential to impact visitor experiences.

## **(3) Trails**

The managed trail system should be maintained or constructed toward more and most difficult trail standards (FSH 2309.18). Trails classified easiest may exist in areas of gentle terrain and valley bottoms. A variety of user restrictions may be implemented to resolve negative resource impacts.

## **(4) Resource Protection Facilities**

Facilities will be natural appearing or will be constructed out of native material. No facilities will be constructed for user convenience or comfort. Facilities will be placed so as to concentrate heavy impact on areas previously impacted and at sites capable of withstanding high impacts.

## **F. LIMITS OF ACCEPTABLE CHANGE**

Recreation visitor use of wilderness cannot occur without some degree of impact on wilderness resources. Impact occurs on the physical and biological features of wilderness as well as the quality of the recreation experience of other visitors. There is a point at which increasing impact of visitor use will result in unacceptable degradation outside the intent and direction of the Wilderness Act. The Regional Nondegradation Policy is described in FSM 2322.03.

The limits of acceptable change concept is a system to establish limits on the change that can be permitted within the nondegradation policy, before management actions must be taken to reverse trends of change. These actions can be either directed to improve the knowledge and abilities of the users or to reduce the numbers of visitors in impacted areas during critical time periods, or both.

The system has incorporated limits or maximum levels for which key indicator resource values can change before management actions are implemented. The system assumes that the condition of key indicators which are easily quantifiable and measurable reflect the general condition of resource values which are not easily measured. The impact of human-caused noise and human disturbance of wildlife are examples of impacts not easily measured.

The limits of acceptable change levels or standards are different for each Wilderness Recreation Opportunity Spectrum Class. The standards for the Pristine Class tolerate the least impact in order to achieve the most pristine wilderness conditions and the least evidence of man's activity. The Transition Class standards are more tolerant reflecting management of the area for a semi-primitive recreation experience and physical evidence of man's activity.

Table E-2 lists the key indicators that will be measured in monitoring the physical, biological, and social conditions and the standards for each Wilderness Recreation Opportunity Spectrum Class.

When monitoring results indicate that the condition of one or more of the key indicators is approaching the standard, or limit of acceptable change, a trend analysis will be done. This analysis will assess the changing conditions and identify all factors of visitor use contributing to the change. Cost effectiveness of possible management actions and recreation opportunity tradeoffs will be considered in the analysis. The analysis will identify alternative courses of action and a most suitable alternative will be chosen and implemented. Section H of this appendix explains potential management actions appropriate to resolve impact problems.

There is a high probability that initial monitoring results in some areas will indicate impact conditions in excess of standards established for particular WROS Classes. In this event, monitoring efforts will need to be intensified to establish the current trends. The objectives in these situations will be to institute management actions to achieve an improving trend. Downgrading the Wilderness Recreation Opportunity Class to a class more tolerant of impact will not be an option.

Over the long term, wilderness management activities should lead to an improving trend in the effects of man's activity on wilderness resources in all WROS classes.

**TABLE E-2**  
**LIMITS OF ACCEPTABLE CHANGE STANDARDS**

Indicators	Pristine	Primitive	Semi-Primitive	Transition
Vegetation loss and bare, compacted mineral soil at campsites (square feet)	225	400	625	1,000
Number of Trees with roots exposed or percent (whichever is less)	0 0%	4 25%	6 25%	10 50%
Encounters--80% Probability--Maximum number of encounters per day when traveling--primary use season.	1	7	10	10-20 (Generally 10, but up to 20 on a case by case basis)
Party size-- People and stock combined.	12 (Encourage 6 or less people, 0 stock). 12 people and 18 animals in the Lake Chelan-Sawtooth Wilderness	12	12	12
Campsites visible when occupied	0	1	2	3
Dead woody debris available for firewood	Appears to be natural levels compared to adjacent similar areas.			

## G. CARRYING CAPACITY

Carrying capacities have been developed to estimate the amount of recreation visitor use that a wilderness or portion of a wilderness, could support without degradation of resource values. Carrying capacity is commonly expressed in Recreation Visitor Days (RVD's) per year or people-at-one-time (PAOT).

In the Recreation Opportunity Spectrum system, coefficients have been developed that help in the estimation of carrying capacity. These coefficients are the estimated RVD's per average acre per year, that a WROS class can support. Different coefficients are identified for each class and are a theoretical estimation of capacity based on average conditions.

The Alpine Lakes Area Management Plan established the following capacity coefficients and carrying capacity in RVD's per year for the Alpine Lakes Wilderness:

**TABLE E-3**

WROS CLASS	RVD/ACRE/YEAR COEFFICIENT	CARRY CAPACITY RVD's PER YEAR
Trailless	0.5	169,347
Primitive	2.0	20,364
Semi-Primitive	5.0	161,210
Transition	15.0	183,630
		<b>534,551</b>

For the Land and Resource Management Plan for the Wenatchee National Forest, the following carrying capacity coefficients were developed in coordination with adjacent Forests sharing management of the Washington State Cascade Range Wildernesses.

**TABLE E-4**

WROS CLASS	RVD/ACRE/YEAR COEFFICIENT
Pristine (Dedicated Trailless)	0.25
Primitive (General Trailless)	1.00
Semi-Primitive (Trailed)	5.00
Transition	15.00

The carrying capacity for all wilderness except Alpine Lakes Wilderness, are as follows:

**TABLE E-5**

WILDERNESS	RVD'S/YEAR CAPACITY
Lake Chelan - Sawtooth	137,748
Glacier Peak	448,595
Goat Rocks	81,222
Henry M. Jackson	65,040
Norse Peak	60,115
William O. Douglas	267,280
<b>Total</b>	<b>1,060,000 RVD'S/YEAR</b>

The acres per WROS Class are described on page E-3

Considering the information and experienced gained in the Alpine Lakes Wilderness since implementation of the Management Plan, it is now clear, that these coefficients and the corresponding carrying capacity estimates are much too high.

With the implementation of the Limits of Acceptable Change process, carrying capacity estimates based on coefficients will no longer be necessary; although comparison may be useful.

The presence or degree of Wilderness resource deterioration will be determined through the analysis of the condition and trend of the measured changes in LAC indicators, at specific levels of visitor use. Carrying capacities determined through this process will be expressed more in terms of PAOT.

Upon completion of inventories of campsites, and baseline data is gathered on the condition of LAC indicators, more precise estimates of carrying capacity will be established for each wilderness. This analysis should be completed before any major actions are implemented to allocate use to specific individuals, or user groups, or limit visitor entry through mandatory permit systems.

Carrying capacity may be increased or reduced over time, depending on the relative degree of resource impact generated by users. It is conceivable that capacities could be increased if users become educated and generate less impact during their recreation trips in wilderness.

## **H. MANAGEMENT ACTIONS TO MEET MANAGEMENT OBJECTIVES**

When analysis of visitor use levels and monitoring results indicate management action is necessary to solve resource impact problems, a process will be followed to select the appropriate management actions.

Areas will be field checked when inventory or monitoring data show that resource standards are being approached and the trend is downward toward greater deterioration. The field review will determine if the indicators were properly measured and if the indicators accurately reflect the resource conditions. If the measured conditions are correct, then the analysis process described in Section G will be implemented.

Tables E-6 to E-9 list a range of potential management actions depending on the specific circumstances that may be successful in reversing deteriorating conditions. The actions are listed in order of descending priority.

The emphasis in selecting management actions will focus on choosing actions which will be least intrusive to wilderness visitors, yet effective in resolving problems. In cases where problems are extensive, complex, and very visible, management actions will be required that will have some effect on visitors freedom to use certain areas.

In areas where resource impact has been severe, rehabilitation and restoration work will be accomplished to speed up the natural recovery process.

Should the management actions implemented not result in improving conditions, more restrictive and intensive management actions will be instituted. This progression will continue down through the sequence of management actions until the problems are resolved.

Management actions selected, or the extent to which an action is implemented, should also be in accord with the appropriate WROS Class of the area involved.

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**TABLE E-6**

**POTENTIAL MANAGEMENT ACTIONS TO IMPROVE CAMPSITE CONDITION**  
**DESCENDING ORDER OF IMPLEMENTATION**

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Education of users outside wilderness  
Information outside wilderness, at trailheads  
Contact repeat users such as organized groups, clubs and associations, etc.  
Wilderness Ranger contacts  
Reroute trails away from lakes  
Prohibit stock in campsites  
Restrict camping near lakes, streams, and meadows  
Prohibit campfires in specific areas  
Equipment requirements  
Install resource protection facilities on durable sites  
Limit party group size  
Limit number of stock per group  
Length of stay limit in problem areas  
Close campsites to specific users  
Rehabilitate damaged areas  
Special law enforcement efforts  
Campsite closure  
Campsite permits  
Entry quota permit system

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**TABLE E-7**

**POTENTIAL MANAGEMENT ACTIONS TO REDUCE CAMPSITE DENSITY**  
**DESCENDING ORDER OF IMPLEMENTATION**

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Education of users outside wilderness  
Information outside wilderness, at trailheads  
Contact repeat users such as organized groups, clubs and associations, etc.  
Campsite obliteration and rehabilitation  
Prohibit camping within prescribed distances of trails, lakes, streams, and meadows  
Make access to problem areas more difficult  
Campsite closures, may be seasonal  
Closure of large areas to camping

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**TABLE E-8**

**POTENTIAL MANAGEMENT ACTIONS TO REDUCE TRAIL  
AND CAMPSITE ENCOUNTERS  
DESCENDING ORDER OF IMPLEMENTATION**

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Education of users outside wilderness  
Information outside wilderness, at trailheads  
Encourage use outside peak periods  
Limit group size  
Seasonal campsite closures  
Restrict camping near trails  
Close campsites to certain users  
Close specific areas to camping  
Change trailhead and access conditions  
Length of stay limits  
Allow only one-way travel on some trails  
Campsite permits  
Entry quota permit system

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**TABLE E-9**

**POTENTIAL MANAGEMENT ACTIONS TO IMPROVE VEGETATIVE CONDITION  
IMPACTED BY RECREATION STOCK AND PACK ANIMAL GRAZING  
DESCENDING ORDER OF IMPLEMENTATION**

---

Education of users outside wilderness  
Information outside wilderness, at trailheads  
Allow no hay or unprocessed grain  
Require use of supplemental feed  
Limit total number of stock per party  
Limit group size  
Prohibit stock in specific areas  
Prohibit stock in campsites  
Eliminate facilities that are attractions  
Provide facilities where impacts should be concentrated on durable sites  
Allow no stock to feed within specified distance of lakes, streams, and wet areas  
Seasonal Closures  
Close drainages to stock on a rotating basis  
Length of stay limits  
Closure of large areas to stock

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## **I. MONITORING**

A wilderness monitoring program will be conducted to determine the influence of man's activity on the physical, biological, and social resources of each wilderness.

### **1. OBJECTIVES OF THE MONITORING PROGRAMS**

- a. Determine through observation, measurement, and analysis, if man's activity, inside or outside wilderness, is resulting in change in the condition of resource values.
- b. Measure the effectiveness of management actions and programs in achieving wilderness management objectives.
- c. Provide a process for maintaining an up-to-date inventory of campsites, facilities, impacted areas, and visitor-use patterns.

### **2. MONITORING PROGRAM ELEMENTS**

Monitoring plans for individual wilderness shall include at least the following elements:

- a. Measure the indicators of the limits of acceptable change to identify if changes in resource conditions are occurring.
- b. Observe and record general impressions of resource conditions and trends of decline or improvement.
- c. Measure or estimate the effectiveness of management actions implemented to improve or maintain resource conditions.
- d. Note and report new activities which are impacting or may lead to impact on wilderness resources.
- e. Complete or update inventories of campsites, trails, and high-use areas. Resource conditions associated with trails, such as excessive soil erosion rates, can be recorded during trail condition surveys.
- f. Gain perspective through contacts with wilderness users, if their visits to wilderness are satisfying, and if their expectations are being met.
- g. Estimate recreation visitor use.

### **3. MONITORING METHODS**

- a. Monitoring will be conducted within the parameters described in Forest Service Handbook 2309.19, Section 21.3, Monitoring Recreation Impact.
- b. The research publication “Monitoring The Condition of Wilderness Campsites,” by David N. Cole, (Research Paper INT. 302) should serve as a general guideline in monitoring the condition of campsites and heavily used areas.

### **4. MONITORING FREQUENCY**

The frequency of monitoring actions will be described in individual management action plans for each wilderness. Frequencies should be established which will assure the attainment of wilderness monitoring objectives.

As a general rule, campsites and heavy-use areas where resource conditions approach or exceed LAC standards should be monitored at least every one to three years to establish the trends of change.

Areas of significant recreation use that are stable and are not approaching LAC indicator standards should be monitored at least every five years.

# APPENDIX F

## FOREST PLAN MONITORING REQUIREMENTS

### A. INTRODUCTION

The monitoring approach for each major resource area is documented on one or more worksheets. The following information about the worksheets clarifies the monitoring activities associated with the resource area.

**ISSUE:** Numerous management issues, concerns and opportunities were identified early in the planning process. These were used to formulate, analyze, and select the preferred alternative. In order to determine how well the Forest Plan was responding to these items, certain areas of management activity were identified to receive concentrated monitoring review. These are identified under the general heading of issue area.

**FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS:** This statement should include the forest goal, desired future condition or the desired output for the issue stated on the worksheet.

**MANAGEMENT AREAS AFFECTED:** Many resources are addressed by management in specific management areas. This section indicates those management areas which are significant with respect to the resource at hand. Monitoring activities can generally be limited to these management areas.

**RISK ASSESSMENT:** This is an index of the risk involved in the resource area. The index is a function of: (1) the cost of an error which results in not meeting Forest Plan objectives and (2) the likelihood of such an error occurring. **COST OF ERROR** is estimated as "high," "moderate," or "low," depending on the value of the commodity or environmental components involved. **LIKELIHOOD OF ERROR** is estimated as "high," "moderate," or "low," depending on the level of knowledge regarding pertinent cause-effect relationships, and on the amount of pressure which is put on the resource(s) in question.

A numerical value of 1 is assigned to "low" values, 2 is assigned to "moderate" values, and 3 is assigned to "high" values. The **RISK INDEX** is the product of the **COST** and **LIKELIHOOD** values. It can range from "1" to "9." A value of "1" indicates that there is very little risk involved, and low precision, reliability, and monitoring effort is adequate. A **RISK INDEX** of "9" indicates that there is very high risk involved--therefore, high precision, reliability, and effort, are warranted.

**MONITORING QUESTION:** The monitoring questions are the core of the Monitoring Plan. The essence of each question is, "Are things going as the Forest Plan intended?" Information is generally included in the question to indicate that level of probability at which the question should be answered, and the variance from the target quantity which is acceptable. Information to answer these will be obtained and analyzed using value statistical procedures.

Questions are written to address varying periods of time, such as variation in annual outputs versus variation in decadal outputs. Selection of time periods and amount of variation is commensurate with the inherent variability of the resource and the risk of not meeting state objectives.

**THRESHOLD OF VARIABILITY:** For each monitoring question, the variation from expected outputs or activities that is permitted before corrective action or further evaluation is taken. It will be a plus or minus variation, or a phrase describing the event that will take place before further action or evaluation are initiated. The amount of variation tolerable is related to the risk involved as determined by the risk assessment.

**SUGGESTED METHODS/SAMPLING PROCEDURE:** For each monitoring question, methods and/or sampling procedures are suggested/directed. The purpose of this section is to suggest realistic and reasonable methods or sources of information, and it is not intended to exclude other methods as long as they will respond completely to the questions at a reasonable cost.

The sampling procedure specifies the sampling rate and sampling period for each monitoring question, as appropriate. Data will be gathered in a manner that will ensure meeting statistical parameters suggested by the monitoring questions. Suggested methods/sampling procedures are commensurate with the risk of not meeting objectives.

**REPORTING PERIODS:** For each monitoring question, the years in which it must be answered are indicated. A report will be prepared for each set of monitoring questions and will be summarized with all the reports due that year. Copies of this summary and the individual reports will be kept on file at the Supervisor's Office for the entire planning period. The summary will also be available to other agencies and the public.

**RESPONSIBILITY:** Who is responsible for accomplishing the monitoring tasks listed? The people listed here will have the assigned responsibility.

**ANNUAL COST OF MONITORING:** Costs are estimated and are shown as the average annual increase over current costs for all monitoring activities associated with the resource area. Although the reports are due in specific years, the data gathering and analysis work will be spread through the entire planning decade as much as possible.

# FOREST PLAN MONITORING WORKSHEET

## ISSUE: STANDARDS AND GUIDELINES - GENERAL

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Ensure implementation and validation of Plan standards and guidelines is effective at accomplishing Forest goals, outputs, and the desired future condition.

MANAGEMENT AREAS AFFECTED: All

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 2 = RISK INDEX 6

### MONITORING QUESTIONS:

1. Are Forest Plan standards and guidelines being implemented?
2. Are implemented standards and guidelines achieving the expected results?

### THRESHOLD OF VARIABILITY:

1. Standards and guidelines are implemented as described in the Forest Plan.
2. Same tolerances as those described for individual monitoring items on other worksheets.

### SUGGESTED SAMPLING METHODS:

1. Conduct a two stage field review of at least one project/District. The 1st stage is after NEPA analysis and documentation and after project design. The 2nd stage is after project completion.
2. Compare observed findings during field review of 2nd stage with the measurements from other monitoring items described on other worksheets.

### REPORT PERIOD (YEARS):

1. Annual review with a detailed report at 5 year intervals that discusses the significance of findings.
2. Documented results of annual review and discussion. A detailed report is prepared at 5-year intervals when findings from

RESPONSIBILITY: Planning Staff Officer

ANNUAL COST OF MONITORING: \$10,000 of which we are already doing \$5,000

REMARKS: NFMA states that we should monitor "how closely Management Standards have been applied." Some monitoring should be planned for all the Standards in the Plan. Monitoring will include full interdisciplinary review of the range of Management Standards. This review will determine whether the Forest Plan standards are being implemented as intended, and if implementation of these standards is meeting management area goals and objectives.

Could use this system of monitoring to identify which S&G are necessary for mitigation of the effects of activities and which are actually enhancement. Results could change funding sources for activities and be useful in preparing the TSPIRS report.

This may also meet the requirements for a "feed back" loop for the use of information from monitoring to adjust management on the ground.

## FOREST PLAN MONITORING WORKSHEET

### ISSUE: CHANGES IN ROS SETTINGS DUE TO MANAGEMENT ACTIVITIES INCLUDING SEMI-PRIMITIVE RECREATION SETTING

**FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS:** Provide a well balanced array of recreation opportunities across the breadth of the Recreation Opportunity Spectrum (ROS) in accordance with public demand and expectations for outdoor recreation.

**MANAGEMENT AREAS AFFECTED:** Forest-wide

**RISK ASSESSMENT:** COST OF ERROR 2 X LIKELIHOOD OF ERROR 2 = RISK INDEX 4

#### **MONITORING QUESTION:**

Are Forest management activities resulting in change in ROS settings so that end results do not meet the experience levels expected in the Plan?

#### **THRESHOLD OF VARIABILITY:**

Change in setting resulting in a more developed condition than that identified for a specific management area.

#### **SUGGESTED SAMPLING METHODS:**

Review randomly selected environmental documents to assure that ROS has been addressed during project design and alternative selection. Field review randomly selected areas to verify that implemented activities meet ROS standards for that area.

#### **REPORT PERIOD (YEARS):**

Annual review with a detailed report at 5 year intervals that presents a discussion of the significance of findings.

**RESPONSIBILITY:** District Rangers, Recreation Staff Officer

**ANNUAL COST OF MONITORING:** \$3,500 of which we are already doing \$1,000

**REMARKS:** Maintaining semi-primitive or undeveloped recreation opportunities is a Regional issue. Completion of this monitoring item can also be tied into the Forest/Management Team process for project review.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: FOREST TRAILS, INCLUDING OFF ROAD VEHICLE (ORV) USE

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Manage trail use to provide recreation opportunity in a wide range of recreation settings and in harmony with other resource management objectives.

MANAGEMENT AREAS AFFECTED: All.

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 2 = RISK INDEX 4

MONITORING QUESTIONS:

1. Are trails providing the variety of opportunities intended in the Forest Plan?
2. Is trail use occurring without impairment of other resource values? Refer to FSM 2355.05 for definitions.
3. Are trails with mixed users (eg. horse/hiker, hiker/ORV) meeting the expectations for all intended users?

THRESHOLD OF VARIABILITY:

1. Miles of trail constructed and maintained are within 25% of the annual amount estimated in the Plan and within 10% for the decade.
2. Trail features show a stable to improving trend.
3. Comments from the public indicate an increasing trend in conflict among trail users.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

1. Review of project accomplishment reports.
2. Trail condition surveys.
3. Letters and other correspondence as well as field contacts and interviews.

All. Annual review with a detailed report at 5 year intervals that presents a discussion of significant findings.

RESPONSIBILITY: District Rangers and Recreation Staff Officer

ANNUAL COST OF MONITORING: \$15,000 of which we are already doing \$7,500

REMARKS: Required by Executive Orders 11644 and 11989 for off-road vehicles.

# FOREST PLAN MONITORING WORKSHEET

## ISSUE: MANAGEMENT OF DEVELOPED RECREATION FACILITIES

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Provide safe, well maintained developed recreation facilities for public use commensurate with recreation demand.

MANAGEMENT AREAS AFFECTED: RE-1

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 2 = RISK INDEX 4

### MONITORING QUESTIONS:

1. Are available developed recreation facilities meeting public demand?
2. Are developed recreation sites, areas and facilities being adequately maintained to serve the public and protect resource values and recreation improvements?

### THRESHOLD OF VARIABILITY:

1. Use, as measured by RVDs, exceeds 60% of capacity for a site as measured by PAOTs.
2. Developed sites, acres and facilities show a declining trend in safety and resource conditions.

### SUGGESTED SAMPLING METHODS:

### REPORT PERIOD (YEARS):

1. Estimate visitor use at developed recreation sites and areas.
2. Inspect recreation sites and areas.

1&2 Annually with a detailed report at 5 year intervals that discusses significance of findings. Special attention needs to be paid to use levels to adequately predict future recreation construction in time to meet demand.

RESPONSIBILITY: District Rangers, Recreation Staff Officer

ANNUAL COST OF MONITORING: \$18,000 of which we are already doing \$12,000

REMARKS: Recreation is a major use and challenge on the Wenatchee National Forest. This item is intended to provide information on use trends.

Fee collections could serve as an indicator of use trends at fee sites.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: MANAGEMENT OF DISPERSED RECREATION AREAS

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Provide opportunities for dispersed recreation activities (summer and winter) where compatible with other resource management objectives.

MANAGEMENT AREAS AFFECTED: Forest-wide

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 2 = RISK INDEX 6

MONITORING QUESTIONS:

1. Are dispersed recreation sites meeting public demand?
2. Is the recreation opportunity spectrum (ROS) providing the expected variety for Forest users?

THRESHOLD OF VARIABILITY:

1. Dispersed sites show a declining trend in resource conditions.
2. Prescribed ROS classes are not met for a management area.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

1. Evaluate use at dispersed sites.

1. Annually with a detailed report at 5 year intervals that discusses the significance of findings.

2. Field evaluation of a sample of projects to assure they meet desired ROS class.

2. Annually.

RESPONSIBILITY: District Ranger, Recreation Staff Officer

ANNUAL COST OF MONITORING: \$12,000 of which we are already doing \$6,000

REMARKS: Recreation is a major use of the Forest, with demand outpacing supply in some areas such as semi-primitive ROS classes.

We need better tools to assess use in dispersed areas. Code-a-site type systems could be used to track trends but they do not take into account the effects of use where sanitation facilities are not provided. *Involvement by research may be necessary.*

## FOREST PLAN MONITORING WORKSHEET

### ISSUE: WILD AND SCENIC RIVERS

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Retain the character and attributes of rivers recommended for wild, scenic, or recreational designation.

MANAGEMENT AREAS AFFECTED: WS-1, WS-2, WS-3

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 2 = RISK INDEX 6

### MONITORING QUESTION:

Are resource management activities along recommended river corridors being conducted so as to provide appropriate protection at the classification level specified in the designation or study proposal?

### THRESHOLD OF VARIABILITY:

When resource condition or level of activity would lower eligibility below the recommended classification.

### SUGGESTED SAMPLING METHODS:

Review a sample of project analyses before and after implementation within a recommended river corridor

### REPORT PERIOD (YEARS):

Annually with a detailed report at 5-year intervals that presents a discussion of the significance of findings.

RESPONSIBILITY: Recreation Staff Officer, District Ranger

ANNUAL COST OF MONITORING: \$7,000 of which we are not currently doing any since we don't have any designated rivers at this time.

### REMARKS:

## FOREST PLAN MONITORING WORKSHEET

ISSUE: VISUAL RESOURCE OBJECTIVES

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Manage vegetation and facilities to provide views that are consistent with the stated visual quality objectives for each management area. Concentrate monitoring on those management areas with visual quality objectives of partial retention or retention that also allow for changes in vegetation, especially through management of the timber resource.

MANAGEMENT AREAS AFFECTED: Forest-wide.

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 2 = RISK INDEX 6

MONITORING QUESTIONS:

Do the cumulative effects of all resource activities within a viewshed meet the desired visual condition?

THRESHOLD OF VARIABILITY:

Desired conditions met for all areas.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

- |   |  |
|---|--|
| 1. Review a sample of NEPA documents for projects. Select projects from a variety of management areas.  | Annually   |
| 2. Field review a sample of projects representing a wide cross section of the Forest.   | Annually   |
| 3. Conduct a summary viewshed analysis as outlined in R-6 Supplement 65. Establish photo points for a sample of significant views and record scenes before, immediately after, and at 5 year intervals from project implementation. | Prepare a detailed report at 5-year intervals that discusses the significance of findings. |

RESPONSIBILITY: Timber & Visual Resource Management Staff Officer, District Rangers.

ANNUAL COST OF MONITORING: \$14,000 of which we are already doing \$5,000

REMARKS: Needs specific data collection for the selected "piece of ground" for the integrated resource aspect in the monitoring "EVALUATION." Numbers 1 and 2 in suggested sampling methods can probably be accomplished at the same time as many other monitoring items so there should be some cost savings.

Public involvement, ID Team review, research needs in conjunction with public sensitivity.

# FOREST PLAN MONITORING WORKSHEET

ISSUE: RECREATION IMPACTS ON WILDERNESS RESOURCE

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Manage Wilderness to perpetuate wilderness character, natural ecological processes and to provide recreation opportunities appropriate in Wilderness.

MANAGEMENT AREAS AFFECTED: All Wilderness.

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 3 = RISK INDEX 6

MONITORING QUESTIONS:

Is recreation visitor use or management resulting in change in physical, biological or social settings that approach limit of acceptable change (LAC) standards specified in the Forest Plan?

THRESHOLD OF VARIABILITY:

1. When the desired biological or physical settings are within 90% of the LAC standard
2. When the amount of dead woody debris around campsites is observed at less than a natural level.
3. When annual visitor use of an area approaches 95% of the established carrying capacity for that WROS class.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

1&2 Evaluate indicators of LAC through measurement of impacts, campsite condition class estimation, observation of resource conditions and established photo points.

Annually with a detailed report at 5-year intervals that describes the significance of findings.

2. Estimate visitor use through registration, permits, wilderness ranger counts, surveys and photo - electric counts.

RESPONSIBILITY: District Rangers and Recreation Staff Officer

ANNUAL COST OF MONITORING: \$33,000 of which we are already doing \$10,000

REMARKS: This item addresses the policy of nondegradation (FSM 2320.3) and complies with 36 CFR 293 related to maximum levels of use.

The 90% figure for LAC standard means that we are willing to accept a specific amount of change at a setting but we want to know conditions before we get to that point. For example, we may be willing to accept up to 100 square feet of impacted area at a popular Wilderness destination. The 90% limit would mean that we need to start acting when the amount of impact reaches 90 square feet.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: CULTURAL AND HISTORICAL SITE PROTECTION

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: To the extent practical, protect cultural and historical resources from vandalism, disturbance from project activities, and natural degradation.

MANAGEMENT AREAS AFFECTED: Forest-wide.

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 2 = RISK INDEX 6

MONITORING QUESTIONS:

1. Are the National Register characteristics of unevaluated and significant cultural resource properties being protected?
2. Are all reasonably locatable cultural resources being discovered during project area reconnaissance?

THRESHOLD OF VARIABILITY:

1. Significant characteristics are being protected on at least 90% of the cultural resource properties inspected.
2. Discovery of a significant cultural resource during project implementation.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

- |  |          |
|--|----------|
| 1. Field inspect all significant sites in active project areas. Visit all sites in areas where people, animals, and the environment are likely to cause losses or degradation. | Annually |
| 2. Conduct surveys of all high probability areas on 20% of active projects during ground disturbing activity.  | Ongoing  |

RESPONSIBILITY: Recreation Staff Officer and District Rangers

ANNUAL COST OF MONITORING: \$10,000 of which we are already doing \$3,000

REMARKS:

## FOREST PLAN MONITORING WORKSHEET

ISSUE: CULTURAL AND HISTORICAL SITE REHABILITATION

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Rehabilitate damaged sites eligible for inclusion in the National Register of Historic Places.

MANAGEMENT AREAS AFFECTED: Forest-wide.

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 2 = RISK INDEX 6

MONITORING QUESTION:

For sites eligible for inclusion in the National Register of Historic Places, is appropriate stabilization or rehabilitation of damage being completed?

THRESHOLD OF VARIABILITY:

Significant sites are being degraded by vandalism, project activity, and/or the environment.

SUGGESTED SAMPLING METHODS:      REPORT PERIOD (YEARS):

Review all reports on the condition      Annually  
of significant sites and measures  
taken to repair damage.

RESPONSIBILITY: Recreation Staff Officer, District Rangers.

ANNUAL COST OF MONITORING: \$3,750; we are not currently doing any of this

REMARKS:

## FOREST PLAN MONITORING WORKSHEET

ISSUE: COORDINATION AND COMMUNICATION OF FOREST PROGRAMS WITH INDIAN TRIBES.

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Coordinate with appropriate Tribal representatives for all projects in which Indians may have concerns.

MANAGEMENT AREAS AFFECTED: Forest-wide.

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 2 = RISK INDEX 6

Failure to coordinate appropriate projects with Tribal representatives could result in lawsuits or court injunctions. Failure may also indicate noncompliance with NFMA, ARPA or AIRFA requirements or infringement on Treaty rights.

MONITORING QUESTIONS:

1. Are American Indian rights being protected on National Forest lands?
2. Are projects with activities or areas of concern to Indians being coordinated with appropriate Tribal representatives?

THRESHOLD OF VARIABILITY:

1. All rights are protected by treaty.
2. Same thresholds as for specific resource items of concern to tribes.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

- |   |   |
|---|---|
| 1. Review a sample of NEPA documents for projects in areas of concern to Indians.                 | 1&2. Annually with a detailed report at 5-year intervals that describes the significance of findings. |
| 2. Evaluate resource output levels for fish, wildlife, and other resources of concern to Indians. |   |

RESPONSIBILITY: District Rangers, Planning Staff Officer, and Staff Officer for Cultural Resources.

ANNUAL COST OF MONITORING: \$15,000 of which we are already doing \$5,000

REMARKS: Examples of religious resources or resources covered by Treaty rights are fish, wildlife and certain plants. Examples of appropriate projects requiring review are trail or campground construction, wildlife and fish habitat improvements, timber harvest, road construction, or range improvements.

## FOREST PLAN MONITORING WORKSHEET

### ISSUE: MAINTENANCE OF SENSITIVE PLANT POPULATIONS

**FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS:** Provide appropriate habitat to maintain viable populations or enhance populations of all threatened, endangered, and sensitive plant species.

**MANAGEMENT AREAS AFFECTED:** Forest-wide

**RISK ASSESSMENT:** COST OF ERROR 3 X LIKELIHOOD OF ERROR 2 = RISK INDEX 6

Cost of error is high because although only small areas would be affected at one time, some populations are very limited and error could result in a species being Federally listed. Likelihood of error is moderate because much information on occurrence and habitat requirements still needs to be gathered.

### MONITORING QUESTION:

Are sensitive plant species populations being maintained or increasing?

### THRESHOLD OF VARIABILITY:

Ten percent decline in the size of a population at a monitoring site for non-category plants, 5% decline for Category 1 or 2 plant populations.

### SUGGESTED SAMPLING METHODS:

// A sample of plant populations will be monitored long-term; all category 1 & 2 populations plus about 50 plots for other sensitive species. Selected locations will be monitored to determine trends.

### REPORT PERIOD (YEARS):

All activities will include an inventory for sensitive plants as part of NEPA process. Monitoring of specific populations will be completed during and immediately after activity. Populations not affected by proposed activity will be monitored at 5 year intervals to determine changes and trends.

**RESPONSIBILITY:** District Rangers are responsible for District monitoring, Forest Staff coordinates sampling methods, selects monitor sites, compiles data, and produces Forest report.

**ANNUAL COST OF MONITORING:** \$5,500 first 5 years \$4,800 second 5 years

We are currently doing about \$4,000 of this.

See REMARKS for details on costs.

**REMARKS:**

Costs for monitoring 50 permanent plots - ten per year. During the first visit to a site (first five years of LRMP) permanent plots will need to be set up, which will require 1 day of field work and 1/2 day office work per site, or 1.5 days x 10 sites x 2 people (2 @ GS-7) x \$100 per day = \$3,000. For first visits to establish plots, 5 days of a journeyman botanist or ecologist (GS-11/12) will be required for all sites or 5 days x \$150 per day = \$750; for a total of \$3,750. During Subsequent visits to a site (after first five years of Plan), 1 site can be monitored per day including office work, or 1 day x 10 sites x 2 people x \$100 per day = \$2,000. After the second-visit regime begins in the sixth year, we expect one site per year to drop below the 20 percent threshold, the subsequent management review will cost \$1,000. Each year the journeyman botanist/ecologist (GS-11/12) will need to spend three days analyzing data and preparing a report.

$$\text{First 5 years: } \frac{\$3,750 + \$0 + \$450}{(\text{Field Surveys}) + (\text{Review}) + (\text{Compilation/report})} = \$4,200 \text{ (Annual Cost)}$$

$$\text{Thereafter: } \frac{\$2,000 + \$1,000 + \$450}{(\text{Field Surveys}) + (\text{Review}) + (\text{Compilation/report})} = \$3,500 \text{ (Annual Cost)}$$

For monitoring, one-fifth of the selected plots will be evaluated annually. Selection of plant species for sampling will be done in coordination with the Washington Natural Heritage Program. 2 or 3 species at one location counts as 1 site and sites for sampling should cover a number of types of habitat and substrate (e.g. bogs, moist forest, rocky places; granitics, serpentine, basaltic etc.). Where possible, sites selected will be those with the most potential for resource conflicts (timber harvesting, road building, mining, recreation, or areas where unauthorized digging of sensitive plants may occur). If possible, those plants with the fewest known extant populations should receive priority in the sample plots. Each species sampled should have representation from at least two areas (if two areas are known). For a list of the sensitive species see Chapter IV of the Forest Plan.

Permanent photo plots or transects should be set up at all sites. Each site will be monitored every fifth year. Small populations will be individually counted, plant numbers in large populations will be estimated systematically. (Regional Ecologist's techniques for photo plots should be used; consult Forest/Area Ecologist).

Coordinate work on federal candidate species with the USDI Fish and Wildlife Service. Coordinate work on sensitive species with the Washington State Department of Natural Resources-Washington Natural Heritage Program. Coordinate research needs with the appropriate universities and colleges.

At this time the plant species for which this monitoring plan was created include:

- Delphinium viridescens;
- Hackelia venusta;
- Petrophytum cinerascens,
- Sidalcea oregana var. calva; and
- Silene seelyi.

# FOREST PLAN MONITORING WORKSHEET

ISSUE: BIODIVERSITY.

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Maintain native and desirable introduced or historic plant and animal species and communities. Provide all seral stages of all plant associations in a distribution and abundance to assure species diversity and viability. A desired future condition is to establish the local needs of management indicator species, rare species, and the proportion of seral stages that allows for natural diversity.

MANAGEMENT AREAS AFFECTED: Forest-wide

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 2 = RISK INDEX 4

MONITORING QUESTIONS:

1. Is the trend of biological diversity moving as estimated?

2. Is the model for biological diversity being used on project and sub-drainage evaluations?

THRESHOLD OF VARIABILITY:

There are no established thresholds for biodiversity on the Forest. Thresholds and requirements of individual species (i.e., fish, woodpeckers, spotted owl) have been established and are being monitored as described in other items. Management direction has been set in some cases such as for fish habitat improvement, meadow maintenance and enhancement, and maintenance of early seral stages for wildlife forage and cover. As we accumulate information, sub-drainages may be used to evaluate the trends in biodiversity.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

1. Assess biological diversity using the diversity index.

Annually with a detailed report at 5 year intervals that presents a discussion on the significance of findings.

2. Review 20% of NEPA documents to assure compliance with required assessment of biological diversity on a project and sub-drainage basis.

Annually.

RESPONSIBILITY: Range, Wildlife, Fish, Water, Soil Staff Officer.

ANNUAL COST OF MONITORING: \$3,000 We are not yet doing any of this.

REMARKS: This item is a real unknown. We have not done this kind of monitoring in the past. Most of our evaluations have been based on professional judgement without hard data. We really don't have an index yet but we need to respond to the growing public concern with diversity. Development of an index would be an excellent research opportunity.

The questions and sampling methods discussed above generally refer to monitoring not research. Some of the discussion below refers more to research.

Biodiversity touches many planning issues. Issues related to forest structure distribution over time such as the amount and distribution of old-growth forest, the conversion of hardwood-dominated stands to conifer dominated stands, the amount and rate of timber harvested; the amount, quality, and distribution of animal habitat; and the structure of our streams potentially affect biodiversity. Other issues are more commonly related to species composition concerns. Sensitive plant and animal species, management indicator species, and species diversity are examples. Issues such as long-term forest productivity, management of logging residues, species viability, and forest fragmentation, on the other hand relate to the functions of the forest as an ecosystem. Most of these issues are covered by specific monitoring plans.

Some methods to assess attributes that are integral parts of diversity are enumerated below:

1. Use the resource inventory to determine plant association and seral stage and assess the presence/absence of selected common wildlife species.
2. Use stake tree plots, stand exams, silvicultural visits, unit exams, and ecoplots to map plant associations and existing seral stages. These exams are ongoing and used to update data bases. With the installment of the GIS system the process will be streamlined and can be efficiently used to display distribution of seral stages. The Forest wildlife biologist, ecologist, silviculturist, and botanist will be responsible parties.
3. The Forest botanist will use rare plant surveys and monitoring data to evaluate population abundance and trends in density.
4. Information combined from the above sources on species abundance and distribution will be used by the Forest wildlife biologist and Forest/Area ecologist to evaluate the trends in species richness and evenness.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: OLD GROWTH ECOSYSTEMS

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Maintain old growth forest ecosystems as needed for plant habitat, esthetics and biological diversity while still providing appropriate levels of timber for commodity use.

MANAGEMENT AREAS AFFECTED: All areas where old growth occurs.

RISK ASSESSMENT:  $COST\ OF\ ERROR_3 \times LIKELIHOOD\ OF\ ERROR_1 = RISK\ INDEX_3$

MONITORING QUESTION:

Is old growth acreage being retained at the expected rate?

THRESHOLD OF VARIABILITY:

Acreage meeting the definition of old growth as identified in the Forest Plan, varies more than 10% from predicted acres.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

*Amounts and locations of Old Growth stands are inventoried and changes recorded in appropriate geographic data base (GIS), periodic timber sale accomplishment report (PSTAR) and in the STARS data base.*

*Detailed report at 5-year intervals that discusses the significance of findings.*

RESPONSIBILITY: District Rangers, and Timber & Visual Resource Management Staff and Range, Wildlife, Fish, Soil and Water Staff Officer.

ANNUAL COST OF MONITORING: \$10,000 of which we are already doing \$3,000

REMARKS: Monitoring needs for Old Growth and Mature wildlife indicator species are included in separate monitoring worksheets. Additional research is needed on a variety of old growth ecosystems and related attributes (See information needs section Chapter II).

## FOREST PLAN MONITORING WORKSHEET

**ISSUE: NORTHERN SPOTTED OWL (Old Growth and Mature Indicator)**

**FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS:** Provide habitat to maintain viable populations for all vertebrate species on the Forest. Maintain spotted owl habitat capability to provide for no less than 116 pairs of spotted owls at the end of the first decade.

**MANAGEMENT AREAS AFFECTED:** Where suitable spotted owl habitat is found.

**RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 3 = RISK INDEX 9**

Cost of error is high because network has a number of large areas without habitat that cause weaknesses. Likelihood of error is high because of lack of information of Spotted Owl use of grand fir type and winter range.

**MONITORING QUESTIONS:**

1. Is sufficient habitat capability being maintained to meet 1st decade goal?
2. Are network sites occupied by spotted owls at expected rates?

**THRESHOLD OF VARIABILITY:**

1. Forest total is within 15% of the estimated amount of suitable habitat.
2. Trend for occupancy is stable to increasing.

**SUGGESTED SAMPLING METHODS:**

1. Use GIS to track suitable habitat.
2. Regional protocol for spotted owl monitoring

**REPORT PERIOD (YEARS):**

Annually with a detailed report at 5-year intervals that presents a discussion of the significance of findings.

**RESPONSIBILITY:** District Rangers, Range, Wildlife, Fish, Water and Soil Staff Officer.

**ANNUAL COST OF MONITORING:** 1. \$4000 of which we are already doing \$3,000  
2. \$85,000 all of which we are currently doing

**REMARKS:**

1. Cooperative research with WDW and PNW on use of grand fir habitat and winter habitat.
2. Demographic study in cooperation with WDW and PNW.
3. Prey base study in cooperation with WDW and PNW.
4. Research silvicultural treatments to create, maintain and/or enhance spotted owl Habitat in cooperation with WDW, PNW and NCASI.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: PILEATED WOODPECKER HABITAT (Old Growth and Mature Indicator)

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Provide habitat to maintain viable populations for all vertebrate species on the Forest including habitat effectiveness for at least 50 pileated woodpeckers sites identified in the Forest Plan. (These are in addition to habitat available in SOHAs, Wilderness, areas to remain undeveloped, and other areas to be left in a near natural condition.)

MANAGEMENT AREAS AFFECTED: Identified pileated woodpecker habitat areas.

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 2 = RISK INDEX 4

Cost of error is moderate because there are replacement acres where a lost area may be relocated. Likelihood of error is moderate because no harvest will be done in minimum area this decade. Wildfire may eliminate some of the sites.

MONITORING QUESTIONS:

1. Are the number of areas identified in the plan being maintained?
2. Are the established sites being used by pileated woodpeckers?

THRESHOLD OF VARIABILITY:

1. 100% of the MR sites and 80% of additional sites are being maintained as planned.
2. 20% occupancy of established sites.

SUGGESTED SAMPLING METHODS:

1. Review all sites that had other resource management activities occurring.
2. Visit at least 10% of sites.

REPORT PERIOD (YEARS):

Annually with a detailed report at 5-year intervals that presents a discussion on the significance of findings.

RESPONSIBILITY: District Rangers, Range, Wildlife, Fish, Water and Soil Staff Officer.

ANNUAL COST OF MONITORING: \$4,500 We are not yet doing any of this.

REMARKS:

1. Need research on habitat requirements (in cooperation with WDW & PNW).
2. Need to document habitat requirements of species represented by the pileated woodpecker in cooperation with WDW & PNW.
3. Need to inventory population of pileated woodpecker (in cooperation with WDW).
4. Need to map suitable habitat.
5. Develop model for predicting effects on habitat (coop with WDW and PNW).

## FOREST PLAN MONITORING WORKSHEET

ISSUE: MARTEN AND NORTHERN 3-TOED WOODPECKER (Old Growth and Mature Indicator)

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Provide habitat to maintain viable populations for all vertebrate species on the Forest and maintain habitat effectiveness of 150 marten and northern 3-toed woodpecker sites. (These are in addition to habitat available in SOHAs, pileated woodpecker areas, Wilderness, and other areas to be retained in a near natural condition.)

MANAGEMENT AREAS AFFECTED: Identified marten and northern 3-toed woodpecker habitat areas.

RISK ASSESSMENT: COST OF ERROR 2 LIKELIHOOD OF ERROR 2 = RISK INDEX 4

Cost of error is moderate because there are other places where the lost sites may be moved. Likelihood of error is moderate because no harvest will be done in minimum areas this decade. Wildfire may eliminate some of the sites.

MONITORING QUESTIONS:

1. Are the areas identified in the plan being maintained?
2. Are the established sites being used by marten and northern 3-toed woodpeckers?

THRESHOLD OF VARIABILITY:

1. 100% of MR and 80% of all other sites are being maintained.
2. A minimum occupancy of 20% is achieved.

SUGGESTED SAMPLING METHODS:

1. Review all sites that had other resource management activities occurring.
2. Visit at least 10% of sites.

REPORT PERIOD (YEARS):

Annually with a detailed report at 5-year intervals that presents a the significance of findings.

RESPONSIBILITY: District Rangers, Range, Wildlife, Fish, Water and Soil Staff Officer.

ANNUAL COST OF MONITORING: \$10,600 We are not yet doing any of this.

REMARKS:

We have the same research and inventory needs for these indicator species as we listed for the Pileated Woodpecker.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: MOUNTAIN GOAT HABITAT (Indicator species for high elevation and talus)

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Maintain or increase populations. Provide animals for recreation enjoyment. Outputs: Estimate 1,800.

MANAGEMENT AREAS AFFECTED: Where mountain goat habitat is found.

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 1 = RISK INDEX 3

Cost of error is high due to high demand for hunting and viewing and the small population. Chance of error is low because most of our habitat is in management areas with direction compatible with goat habitat objectives.

MONITORING QUESTION:

Is each subpopulation being maintained or increasing?

THRESHOLD OF VARIABILITY:

No downward trend.

SUGGESTED SAMPLING METHODS:

Use State estimates.

REPORT PERIOD (YEARS):

Annually with a detailed report at 5-year intervals the presents the significance of findings.

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soil Staff Officer, District Rangers.

ANNUAL COST OF MONITORING: \$2,000 of which we are already doing \$1,000

REMARKS:

1. Prepare a Forest-wide Species Management Guide (including specific items for each sub-population) in cooperation with WDW.
2. Map suitable habitat and key areas in cooperation with WDW.
3. Develop model for predicting HSI in cooperation with WDW and PNW.

# FOREST PLAN MONITORING WORKSHEET

ISSUE: DEER AND ELK HABITAT (Forest Indicator Species)

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Maintain habitat capability to support populations identified in the Forest Plan and provide animals for recreation enjoyment. Outputs (in summer range): Elk 10,000 -15,000; Deer 20,000 -25,000.

MANAGEMENT AREAS AFFECTED: All management areas with identified habitat.

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 2 = RISK INDEX 4

Cost of error is moderate because of the demand for big game and the tradeoffs of this resource to manage. The likelihood of error is moderate because of some uncertainty of the quantity of thermal cover and identification of winter range used by big game.

MONITORING QUESTIONS:

1. Are populations being maintained as predicted?
2. Is habitat capability being maintained?

THRESHOLD OF VARIABILITY:

1. Population estimates are at least 80% of projections for any five year period.
2. Forage/cover ratios are within 20% of optimum for any subdrainage.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

- |   |                      |
|---|----------------------|
| 1. State agency census records.   | At 5-year intervals. |
| 2. Habitat relationship modeling for projects affecting habitat capability. | As projects occur.   |

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soil Staff Officer, District Rangers.

ANNUAL COST OF MONITORING: \$6,000 We are not yet doing any of this.

REMARKS:

1. Prepare species management guides for each winter range in cooperation with WDW.
2. Develop model for predicting HSI in cooperation with WDW and PNW.
3. Map suitable habitat by type.
4. Cooperate with WDW on road closure areas and habitat improvement

## FOREST PLAN MONITORING WORKSHEET

ISSUE: **PRIMARY CAVITY EXCAVATORS (Indicator Species Group for dead/defective trees)**

**FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS:** Provide habitat to maintain viable populations. Maintain number, size and distribution of trees and snags to meet habitat capability objective by management area as shown in the Forest Plan and provide animals for recreation enjoyment Outputs: at least 40% of the theoretical population Forest-wide.

**MANAGEMENT AREAS AFFECTED:** All forested management areas

**RISK ASSESSMENT:**  $\text{COST OF ERROR}_2 \times \text{LIKELIHOOD OF ERROR}_2 = \text{RISK INDEX}_4$

Cost of error is moderate because most trees needed by wildlife are soft snags and it takes 10-30 years to replace; however, we have many management areas with an abundance of habitat. Likelihood of error is moderate because we have problems with coordination of salvage and green tree projects, fuelwood gathering and State safety requirements.

**MONITORING QUESTIONS:**

1. Are primary cavity excavator habitat and replacement trees being left in the proper numbers, sizes and distribution within each management area?
2. Is the habitat being utilized as expected?
3. Are down trees being provided?

**THRESHOLD OF VARIABILITY:**

1. Habitat availability is nearing the amount specified for a management area.
2. Evidence of use is less than 50% of expected.
3. No downward trend in amount available.

**SUGGESTED SAMPLING METHODS:**

**REPORT PERIOD (YEARS):**

1. Field review of at least 2 completed projects/District/year.
2. Use transects to estimate use level on a subdrainage basis. Sample 10% of subdrainages in which tree removal occurred.
3. Establish transects to measure amount of down material as in number 2.

Annually with a report on trend at 5-year intervals.

**RESPONSIBILITY:** District Rangers, Range, Wildlife, Fish, Water, and Soil Staff Officer.

**ANNUAL COST OF MONITORING:** \$10,000 of which we are already doing about \$3,000

1.Can be combined with the management team review described on the Standards and Guidelines Worksheet but some field measurements will be needed prior to review.

**REMARKS:**

1. Prepare a Species Management Guide in cooperation with WDW.
2. Document the habitat requirements of all species represented by primary cavity excavators in cooperation with WDW and PNW.
3. Need estimates of populations in near natural conditions.
4. Develop model for predicting Habitat Suitability Index in cooperation with WDW and PNW.
5. Map the Suitable Habitat.

The standard in the Forest Plan is designed to meet Regional direction on a per 40 acre basis.

# FOREST PLAN MONITORING WORKSHEET

ISSUE: HAWK AND OWL NEST SITES

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Maintain viable populations and provide animals for recreation enjoyment.

MANAGEMENT AREAS AFFECTED: Forest-wide

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 2 = RISK INDEX 4

Cost of error is moderate. Demand for viewing is high. Populations are high and healthy. These species often have high values for falconry. We must meet the requirements of the Migratory Bird Treaty Act. Likelihood of error is also moderate. It is unlikely that we will ever find all hawk and owl nests.

MONITORING QUESTION:

Are nest sites being protected during implementation of habitat disturbing activity?

THRESHOLD OF VARIABILITY:

Previously unknown nests are disturbed during project implementation.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

Timber sale administrators and project CORs watch for nests during project implementation.

As projects occur. A detailed report be prepared at 5-year intervals to evaluate trend.

RESPONSIBILITY: District Ranger, Range, Wildlife, Fish, Water and Soil Staff Officer.

ANNUAL COST OF MONITORING: \$2,000 of which we are already doing \$1,000

There will be incidental annual administrative costs for monitoring but most of the cost is for the 5-year report.

REMARKS:

Information needs include:

1. List species of concern. (WDW)
2. Nesting requirements of each species. (WDW)
3. A useable map of sighting of all species. (WDW)
4. Feeding habitat requirements by each species. (WDW)
5. Species management Guide. (WDW)

## FOREST PLAN MONITORING WORKSHEET

ISSUE: **BALD EAGLE HABITAT (T.E.&S. Wildlife)**

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Manage critical habitat to improve status of threatened and endangered species to a point where they no longer need protection under the Endangered Species Act. Meet recovery levels established in the Pacific States Bald Eagle Recovery Plan.

MANAGEMENT AREAS AFFECTED: Management areas with active and potential nest sites, roost sites and perches.

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 2 = RISK INDEX 6

Cost of error is high because we have so few active nest sites. Likelihood of error is moderate because we have not located all nest, roost and perch sites.

MONITORING QUESTIONS:

1. Are existing nest sites producing young as anticipated?
2. Are nest, roost and perch sites being maintained?

THRESHOLD OF VARIABILITY:

1. No active site is unused for two successive seasons.
2. All managed sites are maintained until Forest has achieved recovery goal.

SUGGESTED SAMPLING METHODS:

1. Interagency survey of nest sites.
2. Review designated sites.

REPORT PERIOD (YEARS):

Annually with a detailed report at 5-year intervals that presents the significance of findings.

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soil Staff Officer, District Rangers.

ANNUAL COST OF MONITORING: \$5,000 of which we are already doing \$3,000

REMARKS:

1. Nest site surveys coordinated with WDW.
2. Locate roosts and perches with WDW.
3. Map of suitable habitat.
4. Model for predicting habitat effectiveness in cooperation with WDW.
5. Develop a Species Management Guide in cooperation with WDW and US FWL.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: GRIZZLY BEAR (Threatened Species)

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Manage critical habitat to improve the status of threatened and endangered species to a point where they no longer need protection under the Endangered Species Act.

MANAGEMENT AREAS AFFECTED: Forest-wide

RISK ASSESSMENT: COST OF ERROR<sub>3</sub> X LIKELIHOOD OF ERROR<sub>1</sub> = RISK INDEX<sub>3</sub>

Cost of error is high because of extremely low populations. Likelihood of error is low because of an ongoing process to identify habitat.

MONITORING QUESTION:

Are guidelines established for the North Cascades Grizzly Bear Recovery Area being implemented?

THRESHOLD OF VARIABILITY:

Projects are found that do not comply with guidelines.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

Review 20 percent of NEPA documents and follow up with field verification on 1 or 2 projects/District/year.

Annually

RESPONSIBILITY: District Rangers, Range, Wildlife, Fish, Water and Soil Staff Officer.

ANNUAL COST OF MONITORING: \$1,000 We are currently operating at this level.

REMARKS:

1. Continue habitat inventory.
2. Continue documentation of bear sightings. (WDW)
3. Respond to Recovery Plan when completed. (USFWS, WDW)

## FOREST PLAN MONITORING WORKSHEET

ISSUE: PEREGRINE FALCON HABITAT (T.E.&S. Wildlife)

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Manage critical habitat to improve status of threatened and endangered species to a point where they no longer need protection under Endangered Species Act. Cooperate in development of the recovery plan. Outputs: 1 - 2 active nests.

MANAGEMENT AREAS AFFECTED: Areas where habitat is found.

RISK ASSESSMENT:  $\text{COST OF ERROR}_3 \times \text{LIKELIHOOD OF ERROR}_3 = \text{RISK INDEX}_9$

Cost of error is high because we have a threatened species with no identified sites on Forest. Cost of error is high because we have few inventories of habitat and may inadvertently make errors.

MONITORING QUESTIONS:

1. Are recovery sites being maintained?
2. Are sites occupied?

THRESHOLD OF VARIABILITY:

1. All recovery sites are maintained.
2. Occupancy of Wenatchee National Forest sites is equal to other recovery sites east of the Cascade crest.

SUGGESTED SAMPLING METHODS:

1. Review condition of recovery sites.
2. Survey sites for occupancy.

REPORT PERIOD (YEARS):

Annually with a detailed report at 5-year intervals that presents the significance of findings.

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soil Staff Officer, District Rangers.

ANNUAL COST OF MONITORING: \$3,000 of which we are doing \$500

REMARKS:

1. Prepare a Species Management Guide in cooperation with WDW.
2. Complete Nesting Habitat Survey in cooperation with WDW.
3. Map suitable habitat.
4. Develop a HSI model in cooperation with WDW.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: GRAY WOLF HABITAT (Endangered Species)

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Manage critical habitat to improve the status of threatened and endangered species to a point where they no longer need protection under the Endangered Species Act. Participate in the development of recovery plan objectives.

MANAGEMENT AREAS AFFECTED: Forest-wide

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 3 = RISK INDEX 9

Cost of error is high because populations are low. Likelihood of error is high because we have no inventories of habitat.

MONITORING QUESTIONS:

Is habitat capability on an increasing trend?

THRESHOLD OF VARIABILITY:

A downward trend.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

Map habitat and track changes through GIS.

Annually with a report at 5-year intervals to establish a trend in habitat capability.

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soil Staff Officer: District Rangers.

ANNUAL COST OF MONITORING: \$1,000 We are not doing any of this.

REMARKS:

1. Research on habitat requirements (PNW, WDW)
2. Map of habitat (WDW)
3. Inventory population (WDW)
4. Prepare Species Management Guide (WDW)
5. Prepare model for predicting HSI (WDW, PNW)

## FOREST PLAN MONITORING WORKSHEET

### ISSUE: HABITAT FOR SPECIES IDENTIFIED AS CANDIDATES FOR THREATENED STATUS

(California wolverine, Swainson's and ferruginous hawks, lynx, long-billed curlew, Townsend's big eared bat, big horned sheep)

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Enhance habitat to prevent the need for listing species as Federally Threatened or Endangered.

MANAGEMENT AREAS AFFECTED: Forest-wide

RISK ASSESSMENT: COST OF ERROR<sub>3</sub> X LIKELIHOOD OF ERROR<sub>3</sub> = RISK INDEX<sub>9</sub>

Cost of error is high because we have low populations. Likelihood of error is high because we have no research, no specific direction, no inventories of populations or habitat. We have little or no experience managing habitat.

#### MONITORING QUESTIONS:

Is the trend in habitat capability for each candidate species increasing?

#### THRESHOLD OF VARIABILITY:

A declining trend.

#### SUGGESTED SAMPLING METHODS:

Map changes in habitat through GIS.

#### REPORT PERIOD (YEARS):

Annually with reports at 5-year intervals that describe the trend.

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soil Staff Officer, District Rangers.

ANNUAL COST OF MONITORING: \$6,000 We are not doing any of this.

Most of the cost will be in development of the report for each species.

#### REMARKS:

1. Research on habitat requirements (PNW, WDW)
2. Map of habitat (WDW)
3. Inventory population (WDW)
4. Prepare Species Management Guide (WDW)
5. Prepare model for predicting HSI (WDW, PNW)

## FOREST PLAN MONITORING WORKSHEET

ISSUE: TIMBER OFFERED (Allowable Sale Quantity [ASQ] and Timber Sale Program Quantity [TSPQ])

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Achieve planned and assumed volumes of timber sold annually and for the planning period in ASQ and TSPQ.

MANAGEMENT AREAS AFFECTED: For ASQ, all volumes from Management Areas with suitable lands. For TSPQ, all Management Areas where timber harvest is allowed to meet any resource objective.

RISK ASSESSMENT:  $\text{COST OF ERROR}_2 \times \text{LIKELIHOOD OF ERROR}_1 = \text{RISK INDEX}_2$

### MONITORING QUESTIONS:

1. Is the Forest offering the cubic foot volume (board feet in first decade) of chargeable timber established by the plan ASQ?
2. Is the Forest offering the cubic foot volume (board feet in first decade) of non-chargeable timber necessary to achieve the estimated TSPQ?

### THRESHOLD OF VARIABILITY:

The annual amount of timber offered is within 25% of scheduled ASQ and TSPQ. The decade total is within 5% of the Forest Plan projection.

### SUGGESTED SAMPLING METHODS:

Use STARS data base and compare volume in MCF to projected decade trend.

### REPORT PERIOD (YEARS):

Annually with a report at years 5 and 8 of each decade. Adjustments to timber sale schedule made at these times if necessary.

RESPONSIBILITY: Timber & Visual Resource Management Staff Officer, District Rangers.

ANNUAL COST OF MONITORING: \$3,500 We are currently doing all of this.

REMARKS: To assure decade ASQ not exceeded. To test Plan assumption regarding TSPQ.

Need to have an accurate method to convert board feet to cubic feet or a system which allows accurate cubic foot cruising.

For meeting Plan amounts, we can monitor on a board foot basis during the first decade but we still need to get serious about converting our measurements to cubic feet.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: TIMBER HARVEST UNITS (Size, shape and location)

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Manage vegetative cover to meet direction on size of openings created by National Forest timber harvest.

MANAGEMENT AREAS AFFECTED: All Management Areas where scheduled or non-scheduled timber harvest can occur.

RISK ASSESSMENT:  $\text{COST OF ERROR}_2 \times \text{LIKELIHOOD OF ERROR}_1 = \text{RISK INDEX}_2$

MONITORING QUESTION:

Are the Forest Plan standards and guidelines regarding the size and dispersal of openings and condition of adjacent vegetation (eg. height of trees in adjacent areas) being appropriately implemented?

THRESHOLD OF VARIABILITY:

No allowance for non conformance with size restrictions that do not fit exceptions provided by NFMA and the Regional Guide. At least 90% of activities must fully meet shaping and blending objectives

SUGGESTED SAMPLING METHODS:

Review of a sample of created openings in the field.

REPORT PERIOD (YEARS):

Annual review of created openings with a report at 5 year intervals that presents a discussion of the significance of findings.

RESPONSIBILITY: District Ranger, Timber & Visual Resource Management Staff Officer

ANNUAL COST OF MONITORING: \$5,000 of which we are doing \$4,000

REMARKS:

## FOREST PLAN MONITORING WORKSHEET

ISSUE: TIMBER HARVEST

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Ensure that regeneration harvests are not prescribed for areas where average annual growth has not generally reached culmination of mean annual increment.

MANAGEMENT AREAS AFFECTED: All areas where timber harvest is expected.

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 2 = RISK INDEX 4

MONITORING QUESTIONS:

1. Are stands being harvested at an age and condition that produces the expected growth measured on an average annual cubic foot basis?
2. Is the amount of volume removed consistent with amounts sold?

THRESHOLD OF VARIABILITY:

1. Stands being scheduled for regeneration are within 5% of culmination of mean annual increment.
2. Volume removed is within 10% of amount sold.

SUGGESTED SAMPLING METHODS:

1. Review a sample of silvicultural harvest prescriptions calling for regeneration.
2. Cut and sold reports.

REPORT PERIOD (YEARS):

Annual comparison and a report at 5-year intervals that presents a discussion of the significance of findings.

RESPONSIBILITY: District Rangers and Timber & Visual Resource Management Staff Officer.

ANNUAL COST OF MONITORING: \$12,000 of which we are doing \$6,000

REMARKS: Question 1 is intended to tie prescriptions to CMAI. Needs to be monitored because yield tables and rotations in long-term yield calculations are based on harvesting stands at or near CMAI. Question 2 added to provide better tie between timber offered/sold and timber harvested. Question becomes less significant as we move toward sales with payment units or implement a timber management program based on acre controls.

# FOREST PLAN MONITORING WORKSHEET

## ISSUE: SILVICULTURAL PRACTICES

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Assure that silvicultural prescriptions are appropriate, effective and consistent with resource objectives for each management area.

MANAGEMENT AREAS AFFECTED: All Management Areas where scheduled or non-scheduled timber harvest can occur.

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 3 = RISK INDEX 6

### MONITORING QUESTIONS:

1. How many acres of each planned silvicultural practice (eg. precommercial thinnings, regeneration harvest, planting with appropriate genetic stock) have been accomplished?
2. Have silvicultural prescriptions met objectives desired for each management area?
3. Are managed stands growing at the rates estimated by Forest Plan yield models (PROGNOSIS)?

### THRESHOLD OF VARIABILITY:

1. Planned versus accomplished silvicultural practices are within 10% annually and 5% for the decade.
2. Prescriptions produce desired end products on at least 90% of treated acres.
3. Average annual growth is within 10% of predicted rates.

### SUGGESTED SAMPLING METHODS:

### REPORT PERIOD (YEARS):

1 & 2. Field exams for attainment purposes. Use the SILVA, TSI and Reforestation attainment data element within the TRACS data base.

Make annual field exams and comparisons, with a full report at 5 year intervals that presents a discussion of the significance of findings.

3. Modified stand exams in sapling stands and at regular intervals thereafter.

First measurement when trees reach sapling size. Report presenting findings will be prepared at year 8 of the first decade and at 10-year intervals thereafter.

RESPONSIBILITY: Timber & Visual Resource Management Staff Officer; District Rangers.

ANNUAL COST OF MONITORING: \$20,000 of which we are doing \$6,000

REMARKS: Needed for Plan implementation and support of ASQ. Long-term need to verify that projected growth rates from PROGNOSIS are in fact being realized on the ground.

Question 2 added to tie silvicultural practices to integrated resource management.

Question 3 added to meet RPA section 3(d)(1) for identification of lands with stands of trees not growing at best potential rate.

# FOREST PLAN MONITORING WORKSHEET

ISSUE: REFORESTATION

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Minimize the amount of time between the removal of existing trees and reforestation with desired species.

MANAGEMENT AREAS AFFECTED: All those where timber harvest occurs.

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 2 = RISK INDEX 4

MONITORING QUESTIONS:

1. Is stocking for each management area and silvicultural method achieved within the time frame established?
2. Have adequate numbers of trees of desired species been established to realize optimum growth for the management area?

THRESHOLD OF VARIABILITY:

1. The average elapsed time from harvest to reforestation is 3 years or less on 90% of the acres harvested.
2. Average number of trees of desired species are within 10% of recommended levels.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

1. Use the annual accomplishment report to track areas harvested, site preparation completed date, and date of reforestation.

Annually.

2. Conduct field surveys.

Years 1 and 3 after planting.

RESPONSIBILITY: District Ranger and Timber & Visual Resource Management Staff Officer

ANNUAL COST OF MONITORING: \$100,000 Most of this cost is for the field surveys which we are already doing.

REMARKS: This item is intended to test the planning premise supporting planned ASQ. We need to track accomplishment of site preparation within 1 year of availability of the unit and reforestation within 3 years unless there are documented extenuating circumstances.

Question 2 added to meet RPA section 3(d)(1) and NFMA 36 CFR 219.12(k)(5).

## FOREST PLAN MONITORING WORKSHEET

### ISSUE: LANDS NOT SUITABLE FOR TIMBER MANAGEMENT

**FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS:** Verify that technology and/or other information has not been developed to justify reclassifying lands from a not suitable status to suited, or vice versa.

**MANAGEMENT AREAS AFFECTED:** All management areas which include lands from which timber may be harvested.

**RISK ASSESSMENT:** COST OF ERROR 3 X LIKELIHOOD OF ERROR 2 = RISK INDEX 6

#### MONITORING QUESTIONS:

1. Have the lands that were identified in the Plan as not being suitable for timber management now become suitable for timber management?

2. Is the suitable/not suitable land classification accurate as identified in the Forest Plan data base?

#### THRESHOLD OF VARIABILITY:

1. More than a 10 percent change in acres classified as unsuitable.
2. More than a 10 percent error in suitable/unsuitable classification.

#### SUGGESTED SAMPLING METHODS

Record Forest Plan data base in GIS. Update these records based on site specific analyses documented through the NEPA process. Records include reasons for lands being not suited.

#### REPORT PERIOD (YEARS):

Annual recording of information with a report at 10-year intervals that presents a discussion of the significance of findings.

**RESPONSIBILITY:** Timber & Visual Resource Management Staff Officer; District Rangers.

**ANNUAL COST OF MONITORING:** \$12,000 We are not yet doing this.

**REMARKS:** Question 2 added to monitor accuracy of information going into Forest Plan. Important item because of direct relationship to acres being used to calculate ASQ.

## FOREST PLAN MONITORING WORKSHEET

### ISSUE: MAINTENANCE OF LONG-TERM SOIL PRODUCTIVITY

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Manage the soil resource by implementing management practices that maintain or enhance its productive properties.

MANAGEMENT AREAS AFFECTED: All management areas.

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 3 = RISK INDEX 9

Soil is considered to be an irreplaceable resource. Although there is some possibility that compaction, displacement, loss of organic matter, and other changes can be rectified, cost are usually prohibitive. The risk of downstream impacts due to erosion and sedimentation are also usually costly.

### MONITORING QUESTION:

Is soil productivity being adequately protected?

### THRESHOLD OF VARIABILITY:

Less than 20% of an activity area is in a compacted, puddled or displaced condition; severely burned; or actively moving.

### SUGGESTED SAMPLING METHODS: (Also see REMARKS) REPORT PERIOD (YEARS):

- |  |   |
|--|---|
| 1. Soil disturbance monitoring will be done in accordance with the Forest soil monitoring guide.   | 1&2. Annually with a detailed report at 5-year intervals that discusses the significance of findings. |
| 2. For surface erosion - Utilize Allutn or other acceptable methodology on approximately 12 sites Forest-wide per year   |   |
| 3. For mass erosion, evaluation of individual mass failures larger than 200 cubic yards if mid-slope, or 50 cubic yards if in a streamside zone.   | Variable as events occur.   |
| 4. Tree growth measurements will be taken on twenty of the major soil types mapped on the Forest. Paired sample sites (disturbed vs. undisturbed) will be located on each soil type. Both foliar and soil test analysis will be made for each site and at the same frequency as are tree measurements. | At 10-year intervals per site.  |

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soils Staff Officer: District Rangers.

ANNUAL COST OF MONITORING: \$19,500 (Also see REMARKS) We are not yet doing this.

**REMARKS:** This monitoring effort will evaluate the individual effects of soil compaction, soil displacement, surface erosion, mass erosion, organic matter loss, and nutrient loss on long-term soil productivity.

Monitoring may require the combined skills of a soil scientist, a research scientist, silviculturist, and one or more technicians. The specific project analysis will need to be scheduled on a district basis and carried out as a district project, but coordinated through the Supervisors office so that duplications of sites does not become a problem. PNW Forest & Range Research Station scientists will be asked to assist in the evaluation of the monitoring procedures and results.

1.Soil compaction/displacement/puddling monitoring - Monitor 20% of tractor harvested acres per year; Approximately 10,000 acres are harvested each year of which, approximately 30% is harvested by tractors. Therefore, 20% of the 3000 acres would be 600 acres per year. Distribute monitoring over the Forest on a weighted basis by District.

2.Surface erosion monitoring - Select timber harvest area, wildfire area, or other disturbed site that could directly effect water quality and or fish habitat.

3.Mass erosion monitoring - Monitoring this kind of condition may require the use of several different skills: geologist, soil scientist, silviculturist, and watershed technician. Monitoring should evaluate both management related mass failures and naturally occurring mass failures that have a potential adverse effect upon water quality or fish habitat. We should be trying to determine the cause/effect relationships of each event we monitor. An emphasis should be placed on determining the cause/effect relationships of mass erosion events.

Monitoring of individual events: Case by case basis. Field drilling and seismic analysis usually needs to be done at least two times per year (spring and fall). Cross sections and measurements need to be done when the soil mass has stopped moving for the season and it is dry enough support equipment and people. This is also a good time to establish and monitor the photo points. Photo points should be retaken at least every 5 years.

4.Tree growth monitoring - site selection will be based on soil types. Coordinate tree growth measurement work with the timber stand exam program wherever possible. The foliar and soil samples will be taken each time that tree measurements are taken. The local PNW Research Soil Scientist will be asked to help write the monitoring plans and also to interpret monitoring results.

#### ANNUAL COST OF MONITORING (Continued)

1.Estimated cost for monitoring soil compaction/displacement/puddling:  
\$6,000.00/year (approximately 6 timber sales/year)

2.Estimated costs for surface erosion monitoring:  
Estimate \$300.00/site X 12 sites/year = \$3,600.00

3. Estimated costs for mass erosion monitoring:

a. Photo analysis : 20 days/district x \$125/day  
\$2,500.00/District x 1 District/year = \$2,500  
(assumes resource photo availability)

b. Costs to monitor specific events will vary greatly depending on the size, location, etc.  
Costs could run as high as \$10,000.00 per occurrence if drilling/seismic and survey work is required. Photo point monitoring of an event could average \$200/site.

4. Estimated cost for monitoring tree growth:

Field - \$250.00/site (ten paired sites per year) = \$5000.00  
Lab analysis - foliar = \$50.00/sample X 20 samples = \$1000.00  
                  soil = \$50.00/sample X 20 samples = \$1000.00  
\$7000.00 Total/yr

## FOREST PLAN MONITORING WORKSHEET

ISSUE: **FISH HABITAT TRENDS FOR MANAGEMENT INDICATOR SPECIES**

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Maintain or enhance fish habitat capability to at least retain existing capability.

MANAGEMENT AREAS AFFECTED: Forest-wide

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 2 = RISK INDEX 6

MONITORING QUESTION:

Are the habitat trends for Management Indicator Species stable to improving, based on fish production objectives (anadromous) and habitat capability (resident)?

THRESHOLD OF VARIABILITY:

A declining trend in habitat in a drainage for a specific species.

SUGGESTED SAMPLING METHODS;

Anadromous fish numbers obtained from Washington Dept. of Fisheries (spawning and dam counts). Resident population trends (including bull trout) coordinated with Washington Dept. of Wildlife index spawning surveys.

REPORT PERIOD (YEARS):

Annual surveys with a detailed report at 5 year intervals that discussed the significance of findings.

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soil Staff Officer; District Rangers.

ANNUAL COST OF MONITORING: \$6,000 of which we are doing \$1,000

REMARKS: Significant coordination required with fish management agencies.

Baseline stream inventory and project level stream inventory will augment this information on indicator species population trends.

These monitoring efforts are closely linked with those for several other issues, such as the evaluation of long-term trends in watershed condition and fish habitat capability. Refer to other Soil, Water and Fish Habitat Monitoring Worksheets for more detailed information regarding each monitoring component and its linkages within the program.

## FOREST PLAN MONITORING WORKSHEET

**ISSUE: EFFECTS OF FOREST MANAGEMENT ON RIPARIAN DEPENDENT RESOURCES, INCLUDING  
WATER QUALITY, FISH AND WILDLIFE HABITAT**

**FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS:** Provide riparian habitat as specified in the Forest-wide Standards and Guidelines to meet water quality, fish and wildlife habitat objectives.

**MANAGEMENT AREAS AFFECTED:** Forest-wide

**RISK ASSESSMENT:**  $\text{COST OF ERROR}_3 \times \text{LIKELIHOOD OF ERROR}_3 = \text{RISK INDEX}_9$

- Sensitivity of riparian areas/riparian dependent resources
- Water quality is a major public concern
- Emphasis on fish habitat management to meet "Rise to the Future" program, Indian Treaty rights, and NWPPC goals for anadromous fish production.

**MONITORING QUESTION:**

Is project implementation resulting in expected conditions for riparian areas?

**THRESHOLD OF VARIABILITY:**

Non-attainment of a practice or set of practices with Forest Plan standards and guidelines, such as those for riparian area management and water quality.

**SUGGESTED SAMPLING METHODS:**

EA review with field review of a sample of projects for implementation and effectiveness.

**REPORT PERIOD (YEARS):**

Annual review with a detailed report at 5-year intervals that presents a discussion of the significance of findings.

**RESPONSIBILITY:** Range, Wildlife, Fish, Water and Soils Staff Officer; District Rangers.

**ANNUAL COST OF MONITORING:** \$26,000 (Also see REMARKS) We are doing about \$5,000 now

**REMARKS:** The following guidance for implementation and effectiveness monitoring of project activities is considered a minimum level program to address this issue. It must be recognized that this monitoring effort will be supplemented by other components of the Forest-wide program, such as implementation monitoring that will occur during project activity as regular support, soil productivity monitoring, etc.

If a specific project or area requires a more intensive monitoring effort, then that should be prescribed in the project NEPA document.

## SUGGESTED SAMPLING METHODS

**1. Implementation Monitoring** - Evaluation of the extent and quality of implementation of management practices prescribed in the project NEPA document. Include an evaluation of whether the proper practices and controls were included in the NEPA document as well as an assessment of their implementation. (See footnote for suggested minimum sample size.)

a. Review NEPA documents/contracts to determine if Forest Plan standards and guidelines and management prescriptions are being included in project design.

b. On-site review of a sub-sample of completed projects to determine if practices are being implemented as planned in the NEPA document.

**2. Effectiveness Monitoring** - Evaluation of the extent to which management practices prescribed in NEPA documents meet Forest-wide standards and guidelines.

a. On-site review of a sub-sample of completed projects to evaluate overall compliance with Forest-wide standards and guidelines. See following for suggested sample size.

Suggested minimum sample size by resource element:

**Timber:** at least 1 completed timber sale/district/year (completed thru slash disposal activities); emphasis on monitoring of road construction and maintenance activities as well as the effectiveness of riparian zone treatments.

**Range:** at least one allotment/year on the Forest; Also refer to the "Range Forage Condition" monitoring worksheet for information on riparian area and upland monitoring of the range resource.

**Recreation (ORV, Wilderness Uses)/Minerals/Special Uses:** as identified in the project NEPA document.

b. Monitoring of a sub-sample of projects before, during and after activity to evaluate effectiveness of practices and projects in meeting Forest-wide standards and guidelines. Emphasis on quantitative assessment using such parameters as stream temperature, turbidity, sediment deposition, etc.

(1) Emphasis on timber harvest/roading activities.

(2) This component of effectiveness monitoring will be coordinated Forest-wide. Emphasis will be placed on collection of quality data on a limited number of projects. Suggested minimum sample size 3 large sales during the first half of the 10 year timber sale action plan.

(3) This level of effectiveness monitoring will involve integration of monitoring results from the following levels:

- **On-site monitoring** of practice/project on the slope
- **Upstream tributary monitoring** of channel conditions within or immediately adjacent to the activity area
- **Mainstream monitoring** of conditions at a downstream critical reach

(4) Refer to worksheet on Maintenance of Long-Term Soil Productivity for details regarding project monitoring for the soil resource.

c. Soil, Water and Fish Habitat Resources - See monitoring worksheet for "Trends in watershed condition and fish habitat capability".

d. Wildlife Habitat Capability in Riparian Areas - Population trend data for Ruffed Grouse and Beaver will be obtained from WDW. Plots will be established in a sub-sample of Class III and IV streams to evaluate population trends for amphibians after timber harvest activities (1-5 years).

#### ANNUAL COST OF MONITORING (Continued)

For water quality/fish habitat = \$22,500

For riparian wildlife habitat = \$3,500

## FOREST PLAN MONITORING WORKSHEET

ISSUE: CUMULATIVE EFFECTS OF FOREST MANAGEMENT ACTIVITIES ON WATERSHED

### CONDITION AND FISH HABITAT

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Manage the soil resource of the Forest by using management practices that will maintain or enhance its productive properties. Maintain watershed condition to ensure meeting or exceeding State water quality standards. Maintain and improve current and long-term fish habitat capability.

MANAGEMENT AREAS AFFECTED: Forest-wide

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 3 = RISK INDEX 9

MONITORING QUESTION:

Are activities being scheduled in time and space in a manner that minimizes the potential for adverse cumulative effects on watershed condition and fish habitat?

THRESHOLD OF VARIABILITY:

The threshold for this issue is related to the results from other monitoring elements such as fish habitat capability and population trends, watershed condition, and meeting or exceeding State water quality standards.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

Review the results of other monitoring items and evaluate project EAs with field observations including evaluation of activities on land in other ownerships. (See REMARKS section for more detail.)

Annual review with a detailed report at 5-year intervals that discusses the significance of findings.

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soils Staff Officer; District Rangers.

ANNUAL COST OF MONITORING: \$6,000 of which we are doing \$1,000

(Cost for data compilation and evaluation; assumes data from individual monitoring efforts have already been compiled and interpreted)

REMARKS: This monitoring effort is closely linked with those for most other issues, especially to the evaluation of baseline trends in watershed condition and fish habitat. Refer to the "TRENDS IN WATERSHED CONDITION AND FISH HABITAT CAPABILITY" for more detailed information regarding this monitoring component and its linkages within the program.

SUGGESTED SAMPLING METHODS

Provide for an integrated analysis of project planning, scheduling and monitoring results for watersheds. This analysis will include:

1. Compilation and evaluation of ten year timber sale action plans, project EAs, harvest records, IDT evaluations of project compliance with EAs and contracts and information on activities on lands in other ownerships.

2. Compilation and evaluation of monitoring results, such as baseline trends in water quality and fish habitat, effects of forest management activities on watershed condition and fish habitat, etc. as outlined under other monitoring issues.

Review of project scheduling and analyses should occur annually on a sample basis. Review of monitoring results for identification of cumulative effects should occur on a subdrainage basis at least every five years.

## FOREST PLAN MONITORING WORKSHEET

### ISSUE: TRENDS IN WATERSHED CONDITION

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Manage the soil resource by using management practices that will maintain or enhance its productive properties. Maintain watershed condition to ensure meeting or exceeding water quality goals as defined by standards established by the State of Washington. Maintain and improve current and long-term fish habitat capability.

MANAGEMENT AREAS AFFECTED: Forest-wide

RISK ASSESSMENT:  $\text{COST OF ERROR}_3 \times \text{LIKELIHOOD OF ERROR}_3 = \text{RISK INDEX}_9$

Until additional information is available on current conditions and effectiveness of standards and guidelines, a relatively high risk exists that we may not meet management objectives.

### MONITORING QUESTION:

What are the long-term trends in watershed condition as expressed by changes in soil productivity, water quality, and fish habitat capability?

### THRESHOLD OF VARIABILITY:

For soil productivity - see worksheet for "Maintenance of Long-Term Soil Productivity."

For fish habitat capability - any measurable decrease. (The trend in fish habitat capability is considered to be a sensitive index of watershed condition.)

For water quality - failure to meet Federal and State water quality standards.

### SUGGESTED SAMPLING METHODS: REPORT PERIOD (YEARS):

See the REMARKS section for details.

Because of the time needed to gather baseline information and have enough data for comparisons evaluations can be made, the first detailed report will be in 10 years. Reports for subsequent periods will be at 5-year intervals.

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soils Staff Officer; District Rangers.

ANNUAL COST OF MONITORING: Year 1-5 = \$28,500 we are not doing any of this yet.  
Year 6-10 = \$53,500 (Also see REMARKS)

### REMARKS:

### SUGGESTED SAMPLING METHODS

The first thing we need to address this subject is a completed stream survey. From there we can determine the most appropriate locations for monitoring stations on streams and lakes. The process to gather information is explained in this section.

This inventory/monitoring effort will be coordinated with state and other Federal fish and environmental agencies, Indian tribes and private groups.

### Baseline Stream Inventory

A major benefit of the stream inventory program will be the ability to compare the data collected for monitoring purposes. An accelerated stream inventory program is scheduled during the first 3-5 years of Plan implementation (approximately 300 stream miles/year). This program will be a coordinated effort between watershed and fish habitat resources, funded as a basic inventory.

Following this initial effort, approximately 100 stream miles will be inventoried each year for the purposes of baseline monitoring. The total annual cost of this monitoring effort is estimated to be approximately \$25,000.00/year (distributed 2/3 fish, 1/3 watershed; beginning year 5).

Baseline stream inventory will include the following parameters:

- habitat units (e.g., pool, riffle, etc.)
- riparian standards (e.g., large wood per unit distance)
- channel type (Rosgen or other)
- cover
- substrate
- hydraulic parameters (e.g., bankfull width, etc.)
- fish populations (e.g., snorkel counts)
- evaluation of migration obstacles

Project level inventory data will be available to supplement the baseline inventory. This project level inventory will involve more detailed information on specific stream reaches.

### Baseline Monitoring Network - Streams

Baseline monitoring provides broad overview coverage of the Forest. Baseline monitoring sites on selected streams and lakes representatively sample conditions on the Forest, serving as indicators of long-term trend and to characterize the resource. These sites may also serve as monitoring sites for project level monitoring.

Parameter selection will emphasize those factors for which standards have been defined, such as Forest-wide standards for riparian area condition. For example, selected parameters for streams would include characteristics such as stream temperature, sediment deposition in fish habitat, and macroinvertebrates.

#### 1.Streams

The baseline monitoring network would consist of approximately 25 stations distributed across the Forest. Data from this network would be supplemented by information from climatic stations and stream gages operated by the National Weather Service, Soil Conservation Service and the U.S. Geological Survey. Information from the latter sources will be used for resource characterization and background data for predictive purposes in the analysis of likely consequences of projects.

An annual cost estimate for support of a baseline stream monitoring network would be as follows:

a. Estimate 25 stations Forest-wide, parameters as follows:

- (1) Temperature monitoring: 10 of 25 stations
- (2) Core sampling: 10 stations
- (3) Cobble embeddedness: 25 stations
- (4) Macroinvertebrate monitoring: 10 stations
- (5) Other physical/chemical/biological water quality parameters: 5 stations
- (6) Other stream channel parameters, such as bed material composition: all stations

b. Estimated network cost (25 stations)

(1) Temperature monitoring	\$ 1,330
(2) Core sampling	\$ 5,000
(3) Cobble embeddedness	\$ 5,000
(4) Macroinvertebrates	\$ 6,000
(5) Phy/Chem/Bio	\$ 1,500
(6) Stream channel parameters	<u>\$ 5,000</u>
	\$24,000

## 2. Lakes

Evaluation of habitat capability and population trends on a minimum of 10 lakes in coordination with WDW. Coordination emphasis on monitoring of growth and catch rates. Integrate this effort with baseline monitoring for the air resource management program. Estimated cost for evaluation of 5 lakes per year is \$4,500.

Costs summarized from the above narrative:

Baseline Monitoring -Streams \$24,000/year during years 1-10  
Network -Lakes \$4,500/year during years 1-10

Baseline Stream Inventory \$25,000/year during years 6-10

TOTAL Years 1-5 \$28,500  
Years 6-10 \$53,500

These monitoring efforts are closely linked with those for several other issues, such as the evaluation of the cumulative effects of forest management activities on fish habitat capability.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: **RANGE OUTPUTS**

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Manage the range resource to maintain and improve vegetative conditions. Full utilization of forage allocated to livestock will be encouraged.

MANAGEMENT AREAS AFFECTED: All areas where livestock grazing is permitted.

RISK ASSESSMENT:  $\text{COST OF ERROR}_2 \times \text{LIKELIHOOD OF ERROR}_2 = \text{RISK INDEX}_4$

MONITORING QUESTION:

Are the annual outputs (AUMs) for permitted commercial livestock being achieved as projected in the Forest Plan?

THRESHOLD OF VARIABILITY:

A 10% change from projected AUM outputs.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

Review and compare actual with predicted AUM outputs from the annual grazing statistical reports.

Annually with a detailed report at 5-year intervals that describes the significance of findings.

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soils Staff Officer; District Rangers.

ANNUAL COST OF MONITORING: \$3,000 of which we are doing \$2,000

REMARKS:

## FOREST PLAN MONITORING WORKSHEET

ISSUE: FORAGE UTILIZATION

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Provide opportunities to enhance other resource values through the use of livestock to shape desired plant communities.

MANAGEMENT AREAS AFFECTED: All areas where livestock grazing is permitted.

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 2 = RISK INDEX 4

MONITORING QUESTION:

Are the forage utilization levels consistent with goals for riparian and upland areas?

THRESHOLD OF VARIABILITY:

A 10% increase in forage utilization over prescribed standards with a resulting downward trend in condition in riparian and upland areas.

SUGGESTED SAMPLING METHODS:      REPORT PERIOD (YEARS):

Using FSH 2509.21, sample at least 30% of allotments annually with all sampled at least once every 4 years. Highest priority is in known or suspected problem areas.

Annually with a detailed report at 5-year intervals that provides a discussion of the significance of findings.

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soils Staff Officer; District Rangers.

ANNUAL COST OF MONITORING: \$5,000 We are doing all of this now.

REMARKS: Riparian area sampling is a shared monitoring item with watershed, fish and wildlife.

# FOREST PLAN MONITORING WORKSHEET

ISSUE: RANGE FORAGE CONDITIONS

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Improve forage condition with an upward trend in ground cover and species composition, contributing to the protection and enhancement of soils, watershed and wildlife forage.

MANAGEMENT AREAS AFFECTED: All areas where livestock grazing is permitted.

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 2 = RISK INDEX 4

MONITORING QUESTIONS:

1. Is vegetation condition and trend being maintained or improved in riparian and upland areas, so as to meet Forest Plan objectives?
2. Have areas in unsatisfactory condition improved to satisfactory condition?

THRESHOLD OF VARIABILITY:

1. An 10% or greater increase in area showing a downward trend.
2. An upward trend for an area previously identified as being in an unsatisfactory condition.

SUGGESTED SAMPLING METHODS

REPORT PERIOD (YEARS):

Riparian areas: Terrestrial transects and photographs, stream channel cross-section measurements, stream-bank condition evaluation (Haugen, 1987), photo point standard documentation ("Recording the changes", R-6-10-095-1982). Observations, temperature measurements. Comparison with "PC" criteria.

Annually with a detailed report at 5-year intervals that presents a discussion of the significance of findings.

Upland areas: Condition and trend transects, field observations, photo points ("Recording the Changes" R-6-10-095- 1982).

As established in allotment management plans but at least once every 10 years.

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soils Staff Officer; District Rangers.

ANNUAL COST OF MONITORING: \$20,000 of which we are doing \$10,000

REMARKS: Riparian area sampling will be shared with watershed, fish and wildlife. This monitoring is that which is in addition to the normal amount of sampling in riparian areas which would occur without the special riparian area distinction.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: RANGE IMPROVEMENTS

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Maintain all structural improvements at, or as near as possible to, the standard to which they were constructed.

MANAGEMENT AREAS AFFECTED: All areas where livestock grazing is permitted.

RISK ASSESSMENT:  $\text{COST OF ERROR}_2 \times \text{LIKELIHOOD OF ERROR}_1 = \text{RISK INDEX}_2$

MONITORING QUESTIONS:

Are structural range improvements being maintained so that they continue to function at the level they were intended?

THRESHOLD OF VARIABILITY: Ten percent of improvements are not functioning as designed.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

Review allotment records and a sample structural improvements.

Annually with detailed reports at 5-year intervals.

RESPONSIBILITY: Range, Wildlife, Fish, Water and Soils Staff Officer; District Rangers.

ANNUAL COST OF MONITORING: \$6,000 of which we are doing \$3,000

REMARKS:

# FOREST PLAN MONITORING WORKSHEET

ISSUE: ROAD MILEAGE AND MANAGEMENT

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: To plan, design, operate, and maintain a safe economical transportation system providing efficient access for the movement of people and materials involved in the use and protection of National Forest lands.

MANAGEMENT AREAS AFFECTED: All areas where roads are appropriate.

RISK ASSESSMENT:  $COST\ OF\ ERROR\ 2 \times LIKELIHOOD\ OF\ ERROR\ 1 = RISK\ INDEX\ 2$

MONITORING QUESTIONS:

1. Does the transportation system serve the intended resource objectives for the management area?
2. How do the miles of road construction estimated in Forest Plan schedules compare with actual construction?

THRESHOLD OF VARIABILITY:

1. No variability, all non conforming projects will be redesigned.
2. The miles should be within 25% of annual projections and within 10% for the 10 year period.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD:

1. Conduct an interdisciplinary field review of a sample of road projects and the transportation system serving specific management areas.

Annual review with a report at 5 year intervals that includes a discussion of significant findings.

2. Record accomplishment in various existing systems such as STARS, TSPIRS, Roads, etc.

Annual recording with a detailed report at 5 year intervals.

RESPONSIBILITY: District Rangers and Engineering, Lands and Minerals Staff Officer

ANNUAL COST OF MONITORING: \$8,000 of which we are doing \$6,000

REMARKS: Question 2 added to address issue of road management and cost.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: INSECT AND DISEASE CONTROL

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Assure that management practices do not contribute to increases in the incidence of destructive insects and diseases such as spruce budworm, Douglas-fir tussock moth, pine beetle, mistletoe, root rots, and others.

MANAGEMENT AREAS AFFECTED: All forested lands.

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 2 = RISK INDEX 4

MONITORING QUESTION:

Are destructive insect and disease organisms remaining below potentially damaging levels following management activities?

THRESHOLD OF VARIABILITY:

Insect populations and/or infection centers show an increase since the last measurement/survey.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

1. Review of ID&C survey maps to determine trends.
2. Conduct special surveys to determine effects on growth.

1. Annually review with report at 5 year intervals that present a discussion of the significance of findings.
2. A field survey at 10 year intervals.

RESPONSIBILITY: Timber & Visual Resource Management Staff Officer; District Rangers.

ANNUAL COST OF MONITORING: \$5,000 of which we are doing \$1,000

REMARKS: This item is intended to track the effects of insect and disease agents on Forest stands and their effect on growth rates.

# FOREST PLAN MONITORING WORKSHEET

ISSUE: **FOREST FIRE PROTECTION**

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Provide protection from wildfire for forest users, improvements, and forest resources in an efficient manner.

MANAGEMENT AREAS AFFECTED: Forest-wide.

RISK ASSESSMENT: COST OF ERROR 3 X LIKELIHOOD OF ERROR 2 = RISK INDEX 6

MONITORING QUESTIONS:

1. Are implemented fire suppression strategies adequately protecting the public, improvements, and forest resources?
2. Are the costs of protection in line with those projected by the National Fire Management Analysis System?

THRESHOLD OF VARIABILITY:

1. A decrease greater than 15% in the ability of the Forest to provide any of the resource outputs outlined in the Plan.
2. If the total fire program costs (FFP + FFF) and resource loss exceed the value described in the most current NFMAS documentation by more than 20% for two consecutive years.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

- |   |   |
|---|---|
| 1. Compare expected outputs with accomplishment.  | 1&2 Annually with a report at 5 year intervals that discusses the significance of findings. |
| 2. Review program costs and resource loss for each fiscal year.                         |   |
| Review fire suppression costs and resource losses for each fire that exceeds 100 acres. | As needed.  |

RESPONSIBILITY: Air, Fire & Aviation Staff Officer, and District Rangers.

ANNUAL COST OF MONITORING: \$7,000 of which we are doing \$3,500

REMARKS: Interagency coordination is a major portion of the workload. The monitoring costs include time to accomplish the following: 1) Update NFMAS; 2) Ensure compliance with National, Regional, and Forest policy and standards; 3) Work with other disciplines and agencies to review the appropriateness of fire suppression actions.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: USE OF PRESCRIBED FIRE

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Appropriate, efficient application of prescribed fire in support of the Forest Management program.

MANAGEMENT AREAS AFFECTED: All areas where this tool is appropriate.

RISK ASSESSMENT: COST OF ERROR<sub>2</sub> X LIKELIHOOD OF ERROR<sub>2</sub> = RISK INDEX<sub>4</sub>

MONITORING QUESTIONS:

1. Are the acres being treated with prescribed fire meeting expected resource management objectives?
2. Are forest fuel loadings exceeding natural levels and therefore placing Forest users, improvements, and/or resource values at risk?

THRESHOLD OF VARIABILITY:

1. Acres treated are for the purposes prescribed and within 25% of annual projections and 10% for the decade.
2. Fuel loadings, expressed in tons/acre, are within 25% of those expected under natural conditions. Risk assessment is a subjective evaluation with no identifiable threshold.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS)

- |   |   |
|---|---|
| 1. Review smoke management documentation, burn plan objectives, and results of completed activity.                          | Annually with a detailed report at 5 year intervals that presents a discussion of the significance of findings. |
| 2. Fuel loading inventories in conjunction with an assessment of the significance of the findings relative to nearby areas. | Part of Forest inventoried annually with a report at 5 year intervals.  |

RESPONSIBILITY: District Rangers; Air, Fire & Aviation Staff Officer.

ANNUAL COST OF MONITORING: \$30,000 of which we are doing \$10,000

REMARKS: This item applies to all uses of prescribed fire, not just the need to use fire as a tool for site prep and fuel reduction.

# FOREST PLAN MONITORING WORKSHEET

ISSUE: AIR RESOURCE MANAGEMENT

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Maintain air quality in conjunction with all cooperating agencies.

MANAGEMENT AREAS AFFECTED: Forest-wide.

RISK ASSESSMENT: COST OF ERROR 1 X LIKELIHOOD OF ERROR 2 = RISK INDEX 2

Errors result in short-term degradations which could have long-term effects on how forest management activities are viewed by the public. Likelihood of error is moderate because of the variability of weather and our ability to accurately predict.

MONITORING QUESTIONS:

1. Are the impacts on air quality being considered in the management activities being proposed?
2. Is the Forest in compliance with direction outlined in the Clean Air Act, the Washington State Implementation Plan, and National Forest Policy?

THRESHOLD OF VARIABILITY:

1. All NEPA documents for projects with a potential to affect air quality include an evaluation of the likely effects of proposed activities on air quality.
2. Violation of the Washington State Smoke Management plan will initiate review. Negative effects on Air Quality Related Values in any Class I area will result in review.

SUGGESTED SAMPLING METHODS:      REPORT PERIOD (YEARS)

- |   |   |
|---|---|
| 1. Review a sample of NEPA documents.   | 1&2 Annually with a detailed report at 5-year intervals that presents a discussion of the significance of findings. |
| 2. Examine smoke management documents. Review consumption documentation on 20% of prescribed fire projects. |   |

RESPONSIBILITY: District Ranger; Air, Fire & Aviation Staff Officer.

ANNUAL COST OF MONITORING: \$10,000 of which we are doing \$3,000

REMARKS: This is a rapidly expanding program. Priority projects include implementing an Air Quality Related Values Monitoring Plan for the Alpine Lakes Wilderness and establishing baseline values for this airshed. Second priority is to establish AQRVs for additional wildernesses on the Forest and expand monitoring program as necessary. Additional skills may be needed to deal with modeling programs which involve atmospheric variables.

An additional \$50,000 to \$100,000 will be spent annually on monitoring Air Quality Related Values associated with the Class I Wilderness Airsheds. That kind of monitoring is beyond the scope of the effort needed for monitoring the effects of implementing the Forest Plan and is not a part of this plan.

## FOREST PLAN MONITORING WORKSHEET

### ISSUE: COMMUNITY EFFECTS

**FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS:** Provide local communities with a constant source of opportunity for the use of goods and services that provide for desired community growth. Changes in the kinds of business opportunities available today are likely over time.

**MANAGEMENT AREAS AFFECTED:** Forest-wide.

**RISK ASSESSMENT:** COST OF ERROR 3 X LIKELIHOOD OF ERROR 1 = RISK INDEX 3

### MONITORING QUESTIONS:

1. Are payments to Counties changing?
2. Are local populations changing?
3. Are local employment patterns changing?
4. Are payments to counties changing?
5. Are lifestyles, attitudes, beliefs or values changing?
6. Are Forest contributions to area forest products industries changing?

### THRESHOLD OF VARIABILITY:

1.  $\pm 25\%$  annual change.
2. Subjective analysis.
3. Subjective analysis.
4.  $\pm 25\%$  annual change.
5. Subjective analysis.
6. Subjective analysis.

**SUGGESTED SAMPLING METHODS:**

**REPORT PERIOD:** Annual

1. U.S. Census, State Publications, County and local agency reports.
2. U.S. Census, State Publications, County and local agency reports.
3. U.S. Census, State Publications, County and local agency reports.
4. Review Payments to Counties Reports.
5. Interviews.
6. Tracking of raw material flow to mills, industry mix.

**RESPONSIBILITY:** Planning Staff Officer.

**ANNUAL COST OF MONITORING:** \$5,000 of which we are doing \$2,500

**REMARKS:** The National Forest is recognized as a major attraction by many adjacent communities. Revenues generated from National Forest programs are also an important aspect of local community economic health.

## FOREST PLAN MONITORING WORKSHEET

ISSUE: **RESOURCE BUDGETS**

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Provide funding levels necessary to achieve outputs in Forest Plan.

MANAGEMENT AREAS AFFECTED: All

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 1 = RISK INDEX 2

MONITORING QUESTION:

Are the budgets received adequate for achieving the objectives described/ projected in the Forest Plan?

THRESHOLD OF VARIABILITY:

Outputs are within 20 percent of figure specified by Forest Plan. If outputs are below this level, monitor resource budgets to see if they are the reason for the fall down in output.

SUGGESTED SAMPLING METHODS:

REPORT PERIOD (YEARS):

Comparison of budgets and outputs in the Forest Plan with budgets received and outputs actually produced.

Compare annually with a more detailed report at years 3, 5, and 7 to verify that trends are consistent with projections for output and service levels.

RESPONSIBILITY: Planning Staff Officer

ANNUAL COST OF MONITORING: \$3,500 We are not doing any of this yet.

REMARKS: Addresses requirement in 36 CFR 219.12(k): Quantitative estimate of performance comparing outputs and services with those projected by the Forest Plan.

Intent of this item is to keep track of budget trends so timely adjustments can be made. May need to look at a wider range of funding sources to adequately monitor; i.e., challenge cost share, partnerships, etc. in addition to CIP and other appropriated dollars.

It is more important to achieve outputs and services than to concentrate on the question of whether we got the funding we estimated we needed.

# FOREST PLAN MONITORING WORKSHEET

## ISSUE: COSTS AND VALUES

FOREST GOALS, DESIRED FUTURE CONDITION, OUTPUTS: Implement the Forest Plan in a cost efficient manner.

MANAGEMENT AREAS AFFECTED: N/A

RISK ASSESSMENT: COST OF ERROR 2 X LIKELIHOOD OF ERROR 3 = RISK INDEX 6

### MONITORING QUESTIONS:

- 1.Are major costs used in Forest Plan analysis consistent with actual implementation costs?
- 2.Are current values for Forest resources consistent with those used in Forest Plan analysis?

### THRESHOLD OF VARIABILITY:

- 1.Moving average of costs for past three years is within 25 percent of those in the Forest Plan.
- 2.Moving average of timber values for past five years is within 25 percent of those used in Forest Plan. Other values will come from RPA updates and should be within 25 percent of Forest Plan costs.

### SUGGESTED SAMPLING METHODS:

1. Costs can be determined by reviewing unit costs in PAMARS.
2. Timber values determined from cut & sold reports; developed recreation values in part from fee site records; other values from RPA.

### REPORT PERIOD (YEARS):

1&2. Annual review with a detailed report at 5-year intervals that discusses the significance of findings.

RESPONSIBILITY: Forest Economist

ANNUAL COST OF MONITORING: \$3,500 We are not doing any of this yet.

REMARKS: Major costs include capital investment costs for recreation, trails, fish and wildlife, range and timber. Timber costs that need monitoring are reforestation, timber stand improvement, timber sale support, timber sale preparation and administration.

Question 1 responds to 36 CFR 219.12(k) requirement: Costs associated with carrying out planned management prescriptions as compared with costs estimated in the Forest Plan.

Purpose of monitoring is to validate those costs and values used in Forest Plan analysis. Significant differences could result in revisions because of changes in suitability/efficiency of producing some resource outputs or in application of specific S&G.